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*It is our aim, our ambition, our aspiration even, to build our
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future years; for the few men in the forefront of an enduring
and a laborious art; for the disciplined ranks of a distinguished
profession; for the young men—Architects to be—and for all
who love a clustered column or a flying buttress, a traceried
window or a Greek frieze; for the man, too, who honestly
plumbs a jamb.*

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- New Building for the Commonwealth of Australia, London (A. Marshall Mackenzie, LL.D., A.R.S.A., F.R.I.B.A., and A. G. R. Mackenzie, F.R.I.B.A., Architects), July 30.
- Branch Library, New York (Carrère and Hastings, Architects), Aug. 6.
- Reredos in Lady Chapel, Downside Abbey, Bath (J. N. Comper, Architect), Aug. 13.
- Harris Free Library and Museum, Preston (James Hibbert, Architect), Aug. 20.
- Detail of Salon d'Honneur, Turin Exhibition, 1911 (A. Guilbert, Architect), Aug. 27.
- Opera Comique, Paris (Louis Bernier, Architect), Sept. 3.
- Residence of Mr. Daniel Guggenheim, Elberon, N.J. (Carrère and Hastings, Architects), Sept. 10.
- Magistrate's Entrance to Cour de Cassation, Palais de Justice, Paris (Duc, Architect), Sept. 17.
- CURRENT ARCHITECTURE—**
- I., II.—New Building for Institution of Civil Engineers, Great George Street, Westminster (James Miller, A.R.S.A., F.R.I.B.A., Architect), Oct. 1.
- III.—St. John's Institute, Tufton Street, Westminster (Edwin L. Lutyens, A.R.A., F.R.I.B.A., Architect), Oct. 8.
- IV.—Institution of Civil Engineers, Westminster: Sculpture over Main Entrance (James Miller, A.R.S.A., F.R.I.B.A., Architect, Albert Hodge, Sculptor), Oct. 15.
- V., VI.—Bank of Toronto, Toronto (Carrère and Hastings and Eustace G. Bird, Architects), Oct. 22.
- VII., VIII.—Deptford Town Hall (Lanchester and Rickards, F.R.I.B.A., Architects), Oct. 29.
- IX.—The Ashby Memorial, Romsey Abbey (Emile Fuchs, Sculptor, Richardson and Gill, A.R.I.B.A., Architects), Oct. 29.
- X.—University College of North Wales, Bangor: The Council Chamber (Henry T. Hare, F.R.I.B.A., Architect), Nov. 5.
- XI.—Detail of Entrance, No. 226, Rue de Rivoli, Paris, Nov. 5.
- XII., XIII.—Buckingham Palace: New East Facade (Sir Aston Webb, O.B., R.A., Architect), Nov. 12.
- XIV.—Extension to Premises of Institution of Mechanical Engineers, Storey's Gate, Westminster (James Miller, A.R.S.A., F.R.I.B.A., Architect), Nov. 12.
- XV.—Lycée Fénelon, Rue Suger, Paris: Detail at Angle of Facade (A. Tournaire, Architect), Nov. 12.
- XVI., XVII.—British Museum Extension: Detail of New North Facade (J. J. Burnet, A.R.S.A., F.R.I.B.A., Architect), Nov. 19.
- XVIII.—Residence in the Avenue du Bois de Boulogne: Detail of Facade (A. Lafon, Architect), Nov. 26.
- XIX.—Coombe Hill Golf Club-house, Kingston Hill (Harold Bailey and Douglas Wood, F. and A.R.I.B.A., Architects), Nov. 26.
- XX., XXI.—Flats, Nos. 70 and 74, Portland Place, London, W. (Frank T. Verity, F.R.I.B.A., Architect), Dec. 3.
- XXII.—Baron von Plessen's Town House, Copenhagen: Garden Front (Gottfred Trede, Architect), Dec. 3.
- XXIII.—Post Office Building, Eighth Avenue, New York (McKim, Mead, and White, Architects), Dec. 10.
- XXIV.—Grand Central Terminal, New York: Staircase at End of Concourse (Warren and Wetmore and Reed and Stem, Associated Architects), Dec. 10.
- XXV.—Bank, Glasshouse Street, London, W. (Reginald Blomfield, A.R.A., Architect), Dec. 10.
- XXVI.—Residence, Rue de Constantine, Paris, Dec. 10.
- XXVII.—Colnaghi and Obach's Premises, Nos. 144-146, New Bond Street, London, W. Carved over-door and Cornice in "Georgian Room" (Lanchester and Rickards, F.R.I.B.A., Architects), Dec. 10.
- XXVIII., XXIX.—University of the Cape of Good Hope, Cape Town (W. Hawke, F.R.I.B.A., and W. N. McKinlay, Architects), Dec. 17.
- XXX.—Apartment Building, Avenue Victor Hugo, Paris (Gagey, Architect), Dec. 17.
- XXXI.—Apartment House, Rue Grenelle, Paris (Jacques Hermant, Architect), Dec. 24.
- XXXII.—Apartment House, Place Victor Hugo, Paris, Dec. 31.
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- II.—St. Jude's Church, Gray's Inn Road (Sir James Pennethorne, Architect), Oct. 15. (See Correction 404.)
- III.—The Custom House, Plymouth, Nov. 19.
- IV.—The Town Hall, St. Albans (George Smith, Architect), Dec. 24.
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- IV.—Carved Oak Chimney-piece from an Old Room in Cambridge, Dec. 24.
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- I.—House on the Cotswolds (Oswald P. Milne, F.R.I.B.A., Architect), Oct. 1.
- II.—"Brand Lodge," Malvern (Ernest Newton, A.R.A., F.R.I.B.A., Architect), Oct. 8.
- III.—Loggia and Courtyard, No. 129, Grosvenor Road, Westminster (G. and A. Gilbert Scott, Architects), Oct. 15.
- IV.—Addition to Coombe Court, Kingston Hill, Surrey (Mewes and Davis, Architects), Oct. 22.
- V.—Entrance to Flats No. 11a, Portland Place, London (Frank T. Verity, F.R.I.B.A., Architect), Oct. 29.
- VI.—Semi-detached Houses, Chaucer Road, Cambridge (T. H. Lyon, Architect), Nov. 5.
- VII.—House at Gidea Park, Essex (Clough Williams-Ellis, Architect), Nov. 12.
- VIII.—House in Wellgarth Road, Hampstead (Charles Cowles-Voysey, A.R.I.B.A., Architect), Nov. 19.
- IX.—Sproston Court, Norwich (Oswald P. Milne, F.R.I.B.A., Architect), Nov. 29.

- X.—Princess Christian's Homes, Hildenborough, Kent (Clough Williams-Ellis, Architect), Dec. 3.
- XI.—Hovenden House, Fleet, Lincolnshire (J. E. Dixon-Spain, A.R.I.B.A., Architect), Dec. 10.
- XII.—Designs for Workmen's Dwellings (Bradford Housing Competition). By H. S. East, A.R.I.B.A. (First Prize), and Geoffrey Lucas, F.R.I.B.A., and Arthur Lodge, A.R.I.B.A., in conjunction with P. Badcock (Second Prize), Dec. 17.
- XIII.—Designs for Workmen's Dwellings (Bradford Housing Competition). By Patrick Abercrombie, M.A. (Third Prize), Dec. 17.
- XIV.—House at Shepherd's Green, Chislehurst: Garden Front (E. J. May, F.R.I.B.A., Architect), Dec. 24.
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- II.—Business Premises, 43, Pall Mall, London (Pilditch and Co., Architects), Oct. 8.
- III.—Debenham and Freebody's, Wigmore Street, London (William Wallace and J. S. Gibson, F.R.I.B.A., Associated Architects), Oct. 15.
- IV.—No. 86, Piccadilly, London (Still, Wheat, and Luker, Architects), Oct. 22.
- V.—No. 237, Regent-street, London (A. Gilbert Scott, Architect), Oct. 29.
- VI.—Premises, Giltspur Street, London, E.C. (Edwards Greenop, F.R.I.B.A., Architect), Nov. 5.
- VII.—Messrs. Whiteley's new premises, London: Facade to Porchester Gardens (the late John Belcher, R.A., and J. J. Joass, F.R.I.B.A., Architects), Nov. 19.
- VIII.—No. 104, Grafton Street, Dublin (O'Callaghan and Webb, F.F.R.I.A.I., Architects), Nov. 26.

- IX.—No. 173, New Bond Street, London, W. (Designed and Executed by Frank Collinson and Co.), Dec. 3.
- X.—Premises of Messrs. Mellier, Albemarle Street, London, W. (Gale, Durlacher, and Emmett, Architects), Dec. 24.
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- II.—Old Museum, Berlin: Detail of Facade, with Sculpture Group "The Lion Slayer" (K. F. Schinkel, Architect; A. Wolff, Sculptor), Oct. 8.
- III.—The Royal Theatre, Berlin (Karl Friedrich Schinkel, Architect), Oct. 15.
- IV.—Buckingham Palace: West Front (John Nash, Architect), Nov. 5.
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- III.—Liverpool Cathedral: Detail of Organ Case and Choir Stalls (G. Gilbert Scott, Architect), Oct. 15.
- IV.—Shop Front, No. 237, Regent Street, London (A. Gilbert Scott, Architect), Oct. 29.
- V.—Entrance to Country House, Dongan Hills, Staten Island, U.S.A. (Aymar Embury, Architect), Nov. 12.
- VI.—National Museum of Wales, Cardiff: Details of East Main Stairs, etc. (Smith and Brewer, F.F.R.I.B.A., Architects), Nov. 19.
- VII.—Liverpool Cathedral: Cross-section through Quasi-south Transept (G. Gilbert Scott, Architect), Nov. 26.
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(From Piranesi.)



PALACE OF THE EMPEROR FRANCIS JOSEPH, BUDAPEST: DETAIL OF FAÇADE TOWARDS THE DANUBE.

(See page 5.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

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The New L.C.C. Regulations for Reinforced Concrete Buildings.

THE London County Council, under their General Powers Act of 1909, were authorised to make regulations for the construction of buildings wholly or partly of reinforced concrete. As the scope of that Act, in so far as it affected the London Building Acts, was confined to buildings which were permitted to enjoy the privilege of thinner walls by virtue of being constructed as steel frames, it was obviously the intention of the Act to allow the Council to define the essential details of a similar framework in reinforced concrete, instead of metal, such as would enable a similar relaxation to be permitted in wall thicknesses. Fortunately, or otherwise, no such limitation is stated in the clause authorising the Council to draw up regulations; and, having regard to this omission, it would appear that the Council are legally empowered, if they think fit, to regulate all kinds of reinforced work within the area of their jurisdiction.

Practice in this material has not been crystalised during the short period which has elapsed since its general adoption to anything like the same extent as with steel and iron work. The designer has to steer in new waters; many charts exist, but they seldom agree, and anything in printer's ink which bears the stamp of official approval is certain to be highly valued by both professionals and laymen, whatever may be the intrinsic worth or accuracy. Not only the technical Press, but also individual designers and professional men in this country, are therefore confronted with an obvious duty to examine most carefully any proposed regulations put forward, to draw attention without delay to any points which may seem to them imperfect, and to suggest with equal promptitude any alterations which appear to be desirable. The Act imposed no limit when empowering the Council to incur expenditure with regard to investigation and experimental research, and it insured that any proposals made should be communicated to the Institution of Civil Engineers, the Surveyors' Institution, the Royal Institute of British Architects, and the Concrete Institute, and the action of these bodies in forming a strong representative committee to informally consider preliminary draft proposals with the Council was most businesslike. Unfortunately, however, the draft which resulted from these excellent arrangements was scarcely of a nature to secure general acceptance. A long code of 160 clauses, with numerous subdivisions and tables, was presented to the Council and accepted by them on November 21st, 1911, formally confirmed a week later, sealed on December 6th, and forwarded to the Local Government Board for approval, copies being sent to the institutions named in the Act. The length of the proposed code did not make for reproduction in the technical journals, and none of the institutions concerned published it for the consideration of their members. As the average practitioner could scarcely be expected to dig it out from the minutes of the Council, practically the only text available was the reproduction published by this journal on December 6th, 13th, and 27th, 1911. However gratifying it may be to us personally to find that the suggestions made in these

columns have been adopted, we cannot pretend that they cover the whole ground.

The new code evidently still contains some of the old errors in their original and some in new forms. A few new clauses appear which are of more than doubtful accuracy, whilst in some cases an attempt has been made to give effect to criticisms by grafting the suggestions made on to the old clauses, the hybrid result being still more unsatisfactory than the original stock.

Without attempting to deal with any clause in detail, we note that the legal scope of the code is still restricted to buildings which are virtually complete frames of reinforced concrete with party walls. Combinations of steelwork and reinforced concrete are debarred from the advantages of the Act, and relieved, together with all other forms of reinforced concrete, from its restrictions. The statutory test deflection is altered from the original impossible figure on beams with free ends (concerning whose deflection we do know something) to an equally impossible figure on beams with fixed ends, about which we have practically no data whatever. If this is a mere guess on the part of some official it can scarcely be called a very brilliant one.

The clauses relating to long columns are varied, but the old arithmetical error reappears in a new guise, rather worse than the original, and the objection taken to a later clause has been met by stating that the column may be calculated by the old incorrect method or by the new—a naïve method of meeting unanswerable criticism which should lead to some interesting developments when the clause comes to be administered.

The most important alteration is that the modular ratio is altered for rich concretes. However desirable such alteration may be from a purely theoretical point of view, it is one which necessitates the alteration of all the data, tables, diagrams, and other aids to calculation and design which have been based upon a ratio of 15 at working stresses. In view of the immense labour it involves and of the present state of our knowledge, one would have expected that, until the need for alteration had been shown by conclusive experimental data, any necessary allowance might have been made by a reduction in the permissible stress on rich concrete, or at least this method might have been permitted as an alternative to the designer.

The former code appeared to be merely a laborious attempt to combine in legal form the average requirements of all existing codes, irrespective of their age, with the terms of the R.I.B.A. Reports. The new code appears to be a further incorporation of such part of the volume of criticism invoked as lent itself to brief alterations of wording. The old code was not particularly remarkable for technical skill, accuracy, and practical foresight, but the new code appears to be even less so.

The Local Government Board are to be asked in a month's time to ratify what are stated to be *their own decisions*, and unless the institutions exercise the powers delegated to them under the Act, great damage may be done to an extensive and promising industry. It is imperative that they should act, and act promptly.

Councils are possibly in recess, but chairmen can deal with emergencies. The cost of circulating the new code amongst members may be prohibitive, but at least members could be notified that copies can be obtained for a few pence, and that suggestions and criticisms will be welcomed and considered by a small committee. If this is well done there is no reason why the Board should not be promptly placed in possession of the opinion of the bulk of professional men, and therefore be in a position to suggest to a round-table conference such revisions as would make the code a credit to English engineers and a valuable *précis* of sound accepted practice, rather than an inelastic mixture of rigid rules, which threaten to do more harm than good.

A Letch for Linings.

TO be for once in a way completely in agreement with a protestation of the Society for the Protection of Ancient Buildings is a pleasure that, as in the most recent instance, is too often marred by the depressing character of the occasion. Mr. A. R. Powys, the secretary of the Society, invites attention to a process of despoliation of our ancient buildings which has recently become common—namely, the practice of stripping them of their wainscoting or wall-panelling. He is apprehensive of fresh instances in which “rare Elizabethan, Jacobean, and Queen Anne panelling is to be gutted, and the spoils are to be shipped to the United States.” Of the two methods of protesting against such vandalism—that of pungent invective and that of argumentative persuasion—Mr. Powys has chosen the blander treatment. He does not heap scorn on the vandals, but gives a series of excellent reasons why they should cease from their vandalism. One of these shall here suffice—“that the greater the decorative value of a suite of panelling is in the place for which it was designed, the more it has to lose in a modern setting.” This is the right kind of appeal; but its effect on the blatant acquisitiveness of the moneyed magnates of the United States is not likely to be instantaneous. It is the best thing that can be done, however; and sweet reasonableness may, in some few instances—those in which the desire to acquire venerable or beautiful objects is *ipso facto* a sign of grace—result in that more effectual conversion, in which the love of the venerable or beautiful shall become more pure and platonic—shall not seek the selfish satisfaction of possession. But the larger hope lies in the general spread of real culture in the United States, as signalled by its admirable essays in architecture; for this, in course of time, may supersede the spurious taste which leads to so many regrettable incidents; and, by-and-by, society, so far from envying and applauding the despoiler, shall condemn his bad form, and he will be effectually frowned down. In the meantime, failing the greater stringency and inclusiveness that would mark a really effective Ancient Monuments Preservation Act, there is nothing to do but to keep on pegging away in the effort to mitigate barbarism in general, and, in particular, this latest and most irritating phase of it—the leech for linings.

The London County Hall.

ALWAYS we have with us “the young man in a hurry.” As a counter-irritant rather than as an anticote, there is official dilatoriness. Reasonable progress lies between these extremes. The young man thinks that he is attacking his natural prey when he is writing smart notes about the London County Hall. Beyond measure and remorse he writes in the “Pall Mall Gazette” that “æons have already been spent on the foundations; and now that the appearance of scaffolding had begun to raise our hopes they are dashed by the announcement that the construction will not be completed for another four

years.” To the very young, who regard the four years that have elapsed since the actual work of construction was begun as so many “æons”—“æon” being defined as “a great cycle of years; an age; an era”—the prospect of waiting yet another four years must indeed seem appalling, and one marvels at the studied moderation of the young man’s concluding sentence: “Our grandchildren may see Mr. Knott’s hall in its glory about the same time that the negotiations on the Admiralty Arch reach their unhasting conclusion.” We would mitigate somewhat upon this impatient writer’s not unhasting conclusion, and observe that while only the very young may be permitted to expect colossal buildings to spring up with the rapidity of Aladdin’s palace or a hook-and-eye school, the time specified for the completion of the London County Hall does seem to be somewhat unnecessarily protracted, if we recall that Street’s Law Courts were, at least in part, ready for occupation five years after the first stone was laid, notwithstanding the delay caused by a strike of masons; while Barry’s New Palace at Westminster, of which the first stone was laid April 27th, 1840, had its House of Peers opened April 15th, 1847. The Victoria Tower, however, was not finished until 1857, the architect deeming it wise not to proceed at a greater rate than 30 ft. a year, so as to allow for settlement; and Big Ben did not come into being until 1858—eighteen years after the laying of the first stone of the building. If the London County Hall is completed within the stipulated time, there will be no great reason for complaint, although the achievement will not be a monument to those modern hustling methods of which we hear so much and see so little.

A New Registration Bill.

MUCH though one is bound to admire the pluck and persistency with which the Society of Architects continues to fight for Registration, the chastening thought will intrude itself that these fine qualities are largely wasted in any effort of the Society to carry a Bill through Parliament. Yet the Society has again drafted a Bill, and is vigorously circularising “those whose assistance is essential for passing it.” Such energy and resolution deserve a better reward than they are at all likely to reap. For Parliament, being fully cognisant of the existence of an older and more representative body, is but little likely to entertain the proposals of a society whose claims to attention must inevitably suffer in the comparison. That is the main reason for regarding the fate of the Bill as a foregone conclusion. On the other hand, it must be conceded that any sincere and courageous attempt, however hopeless as to the direct issue, is sure of its moral effect. Perseverance with the Bill not only puts beyond question the comparatively negligible fact that the Society, having the courage of its convictions, is prepared to back them with perhaps rather desperate energy, but it likewise demonstrates the vitality of the principle advocated. But to these advantages there is a serious set-off. While there can be no harm in familiarising the public with the idea of Registration, and incidentally winning converts to it, there is some reason for fearing that to familiarise Parliament with it will produce an adverse effect. The House is apt to become very impatient of importunity, and to get into the mere habit of rejecting automatically the Bill that they have come to regard as a hardy perennial. It is therefore unwise to trouble Parliament any further until a Bill representing the solidarity rather than emphasising the division of the architectural organisations can be presented. It is clear, moreover, that these observations do not apply exclusively to the Society of Architects. In order to have any chance of success, a Registration Bill requires the utmost united support of the full effective force of the architectural profession.

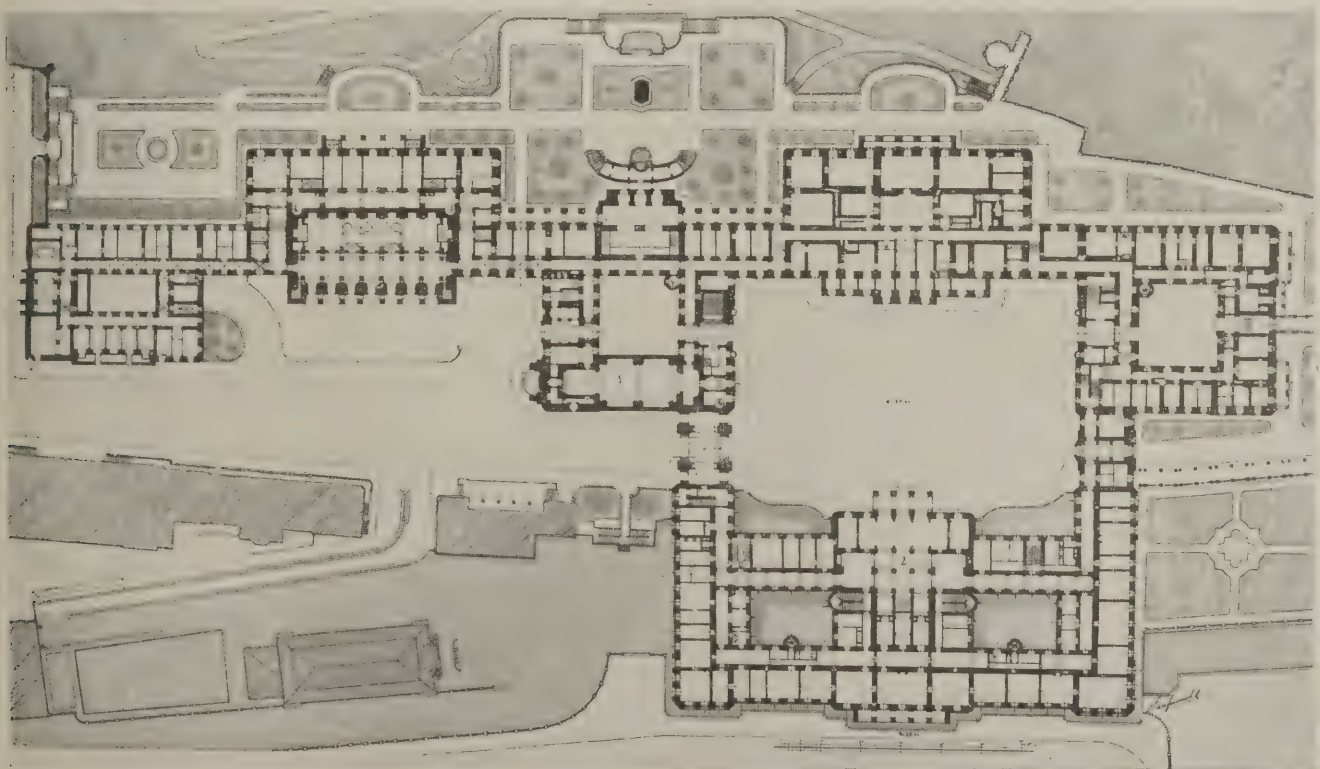
THE ROYAL PALACE OF BUDAPEST.

[Specially Contributed.]

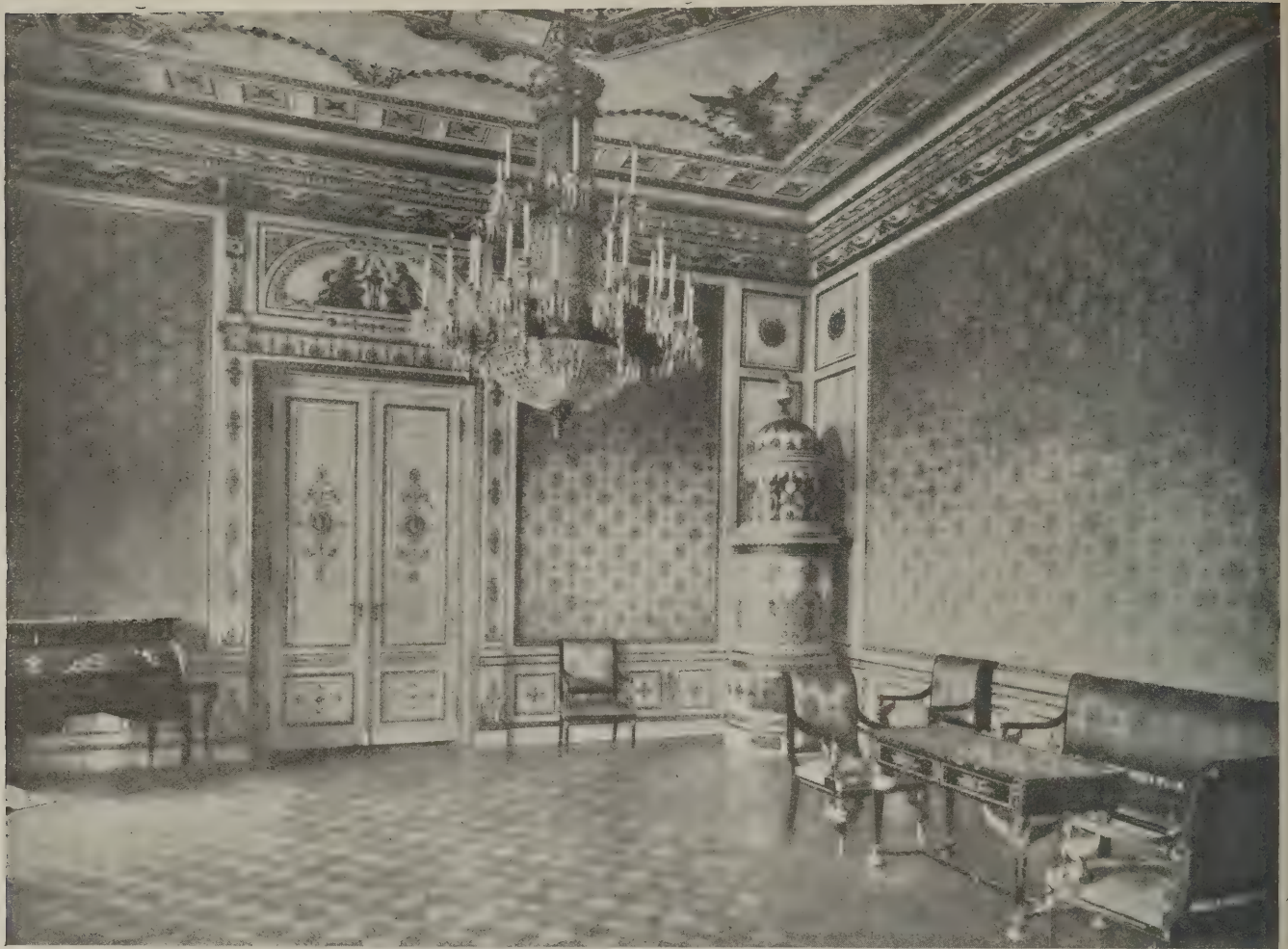
BUDAPEST is often referred to as being one of the most picturesque cities in Europe: the Royal Palace at Buda on the right bank of the Danube occupies not only the most picturesque site in the composite city, but is also its most picturesque building. Apart from the immediate banks of the Danube, and the hill rising on the Buda side, we should ourselves not be inclined to claim any especially picturesque qualities for the city of Budapest; it is no more remarkable in this respect than any other city, and there are many which, with greater justice, might lay claim to the title. But probably there is no other royal palace of the same extent which occupies such an imposing site. There are stretches of the Danube which may be compared for their romantic qualities to the Rhine between Coblenz and Mayence; and the river as it runs through Budapest strikes, so far as one of the banks is concerned, just such a stretch. The dominant building which crowns the crest of the line of hill is not, as in the case of the Rhine, a mediæval castle of irregular outline, with machicolated walls, but a comparatively modern building, of formal proportions and vast extent. Although the present palace is a modern structure (it was not finished until 1896), it occupies an ancient site, on which earlier royal palaces or castles had stood, and notwithstanding its modernity it possesses qualities of interest which are part of the history of the Hungarian peoples. Anyone who is familiar with the turbulent history of the country, with its rare and brief intervals of tranquillity, can readily grasp how it is that Hungary, in common with its Balkan neighbours, has had small opportunity for the cultivation of the arts. History has shown that the Turk makes an awkward visitor at your gates; and until the latter part of the eighteenth century he had been, throughout the greater part of the Christian era, bombarding the frontier of Hungary, penetrating often to the walls of Buda. Pest was largely saved from similar attacks by the spacious breadth of the Danube. Apart from these con-

siderations, it is also necessary to take into account the temperament of the people. Looking on the map of Europe, it seems a strange thing that races placed in close geographical position to Greece and Italy, the countries of classic thought and art, should remain of all the peoples of Europe, excepting those of Russia, the least influenced by the classic idea. The spirit of the ancient Huns and Goths of early Roman history would seem to have endured in the Balkan peninsula throughout the ages. The indifference, or antagonism, to outside influences, the attitude of fierce independence, the delight in traditional manners and customs, the cultivation, to some degree of skill, of the native arts of embroidery and carving, and to a greater degree of skill, of dancing and music, independently of what is going on in other parts of the world, may indicate a certain spirit of barbaric arrogance; but we cannot fail in a certain kind of respect for races which remained, and which to a very large extent still remain individual, while their less ingenuous neighbours have discovered or lost themselves in the less independent spirit of a sort of progressive eclecticism.

We have referred incidentally to Hungarian history because the Royal Palace of Budapest, although a comparatively modern building, is perhaps more completely an expression of Hungarian history than other buildings in the country. There are few remains of older architecture in the city, and these are not particularly interesting. A pastoral people, occupied with resisting the raids of its enemies, and often succumbing to them, was not likely to develop any self-conscious art expression; the nation besides remained poor and without luxury. It was not, broadly speaking, until after the Turks were finally driven out of the city of Buda that the Hungarians began to discover a national artistic consciousness. The laying of the foundation-stone of the present palace in 1749 marked the beginning of this new era in national feeling. The Austrian policy of that great diplomatist, Maria Theresa, may, in the first instance, have assisted in the



PALACE OF THE EMPEROR FRANCIS JOSEPH, BUDAPEST: GROUND-FLOOR PLAN.



IMPERIAL ROOM IN THE ROYAL PALACE OF BUDAPEST.

movement; but the structure, either in its origin or as it stands, was not the result of a royal whim or altogether a stroke of conciliatory diplomacy on the part of an alien and allied nation. It owed its origin to the wish of the people, and it is not more largely an expression of the national spirit in architecture, than it is in painting, in sculpture, and in the applied arts of various kinds, which go to make up the complete equipment of a great building. During the nineteenth century many other fine and imposing buildings have been erected in Budapest. There are many such on the banks of the Danube, in the vicinity of the Town Park, and elsewhere; but there is none, not even the Houses of Parliament, which is so complete and individual an expression of national artistic aspiration, as the Royal Palace. Within half a century or so the Hungarian architect has fallen under the influence by turns of the Classic, Gothic and Renaissance styles. He has passed through the usual phases of educational development; he has, as it were, graduated in the arts, only to find himself at the end of some fifty years more fiercely individualistic than ever. For to-day we find the architects of Budapest adventuring on originality in form, while harking back to certain curious manifestations of national art, and applying colour and metal to a decorative purpose, which requires often the readjustment of one's artistic point of view even distantly to appreciate. But we hesitate to dismiss offhand these curious manifestations. In the history of architecture individuality as well as scholarship counts. Just as Hungary and the Balkan peoples generally have hitherto occupied a comparatively negligible place in the art history of the world, we daresay that in the future their influence may operate to an extent that it is a little difficult to estimate at the present moment.

To return to the Royal Palace of Budapest. The style of it is baroque, and it is happily chosen, because the baroque is not a style in the precise sense; it is much more an emotion—the fitting expression of an emotional people. It is the Cinderella of the styles. The baroque buildings dance and sing; there is no rule of thumb in their proportions, no severity, no classic tyranny of form. In a baroque building there is no dogmatism; but there is vitality and life. The baroque style had no beginning or end, in the ordinary way of styles, although both can be accounted for historically. But, looking upon the history of architecture as a whole, the baroque seems to wedge itself in, capers in a delightful fashion for a while, and then disappears. The palace at Budapest is a late and probably the most grandiose expression of the style that exists. It is so ostentatiously baroque that from it may be deduced almost the kind of principles which are formulated in regard to the great styles.

The old castle which existed on the present site, or rather on part of it, of the Royal Palace, was despoiled by the Sultan Soliman in 1526. Fifteen years later, in 1541, the Turks entered into definite occupation of the city of Buda, and remained in possession for a century and a half, until 1686, when they were driven out by the Christian armies. The Turkish Army stampeded the place during the Turkish occupation; the building was practically gutted and many precious works of art, books, and priceless manuscripts were damaged or destroyed rather through complete indifference to their value than wilfully. When the Turks had departed they left a ruined building and the forlorn remains of historical documents and other things. For more than half a century the site remained practically a scene of desolation, notwithstanding some attempts to improve it, until

the Hungarians, gathering courage and recovering their national respect (having then established the dual relations with Austria which at present exist), began to realise, as their forefathers had realised before them, the dynastic importance of the decorative site on the Buda hills. A petition of the Hungarian Diet in 1745 to Maria Theresa for funds to start the present building was successful, as might have been expected, for the money was to be devoted to the building of a palatial home for the monarch in her second capital, although a palace on the present scale was not then contemplated. The foundation-stone was laid on May 3rd, 1749, the architect being Luc Hildebrand. War with Prussia interfered with the progress of the work, and in 1764 only the central part of the building had been completed. The new palace was only once inhabited by the Queen; it was, however, a favourite place of residence of her son and successor, Joseph II. During the War of Independence in 1849 the fortress of Buda was besieged by the national army, and the palace was considerably damaged by fire. It was not until the re-establishment of the Austrian Hungarian constitution and the coronation of Francis Joseph in 1867 that the idea of a palace of the present magnitude began gradually to shape itself in the minds of the authorities. Nicholas Ybl, the precursor of the national spirit in Hungarian architecture, was commissioned in 1874 to prepare plans for the reconstruction of the gardens, which involved the removal of a number of miserable dwellings which clustered about the slopes of the castle hill. The gardens, therefore, with their ascending terraces, and the palace as we see it to-day, were due to the enterprise and genius of Ybl, who unfortunately died in 1891, a year after the construction of the main buildings of the palace had begun. His assistant in the preparation of the work, Alois Hauszmann, who was appointed his successor, proved eminently capable of carrying out the original scheme. He has given effect to the main design of Ybl and remained faithful to the national views of his predecessor in all important matters, as well as in those of detail. Let us quote his own words: "Mais ce qui a dû me guider avant tout dans la décoration intérieure du château royal de Bude c'est la préoccupation de faire prévaloir, tant dans les œuvres d'art que dans les applications de l'art à l'industrie, autant que cela a été possible, le point de vue national." The main difficulty which confronted both Ybl and Hauszmann in their desire for national expression in the building and in its decorations was that they both recognised that Hungary did not possess a national style of architecture. But Hauszmann recognised that Hungary possessed a rich quarry for ornamental design in the national embroideries, textile fabrics, and in other subordinate phases of art expression. In these he has discovered national *motifs* which he has applied to the architectural features of the building and otherwise, and in such *motifs* he sees the hope for the development of a national style in architecture. Apart from these considerations, native artists have been engaged in the execution of the work; the works of sculpture, the individual groups which form a principal feature of the gardens, as well as the applied sculpture in the external or internal decoration of the building; the paintings which commemorate glorious episodes in national history on the walls, and the flowing allegories which decorate the ceilings—all these are, we believe, without exception, the creation of men of native birth. The historic scheme adopted in decorating some of the principal rooms in the styles of various dynasties, Romanesque, Renaissance, and Baroque, has provided these artists with plenty of opportunity for showing their quality. Herr Hauszmann, in a copious monograph of the building, states that none of the artists in question was chosen by competition, but by himself, and they were assigned certain works according to the measure and direction of their ability.

The palace contains 860 rooms, and the façade facing the Danube extends about 1,000 ft. in length. The style of the building was determined by that of the old palace erected under Maria Theresa, the style which Herr Hauszmann calls Viennese Baroque. It may be inferred that the architects, moved as they were by a strong national feeling, would of themselves have sought a more independent expression of their art had they not been stayed by the remains of the older building and by a feeling of veneration ("par pure raison de pitié") for the memory of the Queen. But they improved upon the remaining buildings by placing the cupola (203 ft. high) on the central portion. The full extent of the building is not completely expressed even by its spacious façade or appearance on the surface, for in the body of the hill are buried a number of chambers, kitchens, as well as accommodation for heating and other purposes. Altogether, interesting as the palace may be regarded as architecture or as the picturesque habitation of royalty, its real interest lies in the fact that it is probably, as we have already said, more directly the expression of the artistic aspirations of a people than any other European building of modern times. As architecture we may see in it many defects; as a singularly human document in the struggling history of Hungary it possesses extraordinary interest.

R. D.

THE INTERNATIONAL ROAD CONGRESS

AT the opening of the third International Road Congress, on Monday of last week, at the Institution of Mechanical Engineers, delegates from thirty-nine Governments were present, and the number of papers submitted was 140, but some of the meetings were held at Caxton Hall, Westminster. Mr. Lloyd George, in welcoming the delegates, said that the Road Board, since its formation in 1910, had made grants to the extent of more than £3,000,000 for the purpose of improving the roads of this country. He spoke of the necessity of improving the exits from the cities, and was very glad to hear that an arrangement had been effected between the Road Board and the Middlesex County Council for a new exit out of London that was "very sadly needed."

Sir George Gibb, the president of the Congress, referred to the number and scope of the unsettled questions with respect to roads, the cause being the rapid development of motor vehicles, "which have, with startling suddenness, revolutionised the use of roads, and completely altered the conditions on which existing systems of road administration and practices of road engineers were based." The general trend of opinion, he said, is undoubtedly in the direction of State management of all important roads in which there is a predominant national interest, which is exactly the view that has always been taken in this Journal.

A certain amount of architectural interest might have been expected to attach to the subject dealt with in Section I., "The Planning of New Streets and Roads," but it was not directly observable in any of the numerous reports. The discussion in this section was opened by Professor Adshead, of Liverpool University, who submitted a series of six resolutions, to the effect (1) that it is better that main roads should pass outside rather than through towns; (2) that gradients should be limited to 5 per cent.; (3) that the radii of curves should provide an unobstructed view 100 yards ahead; (4) that tram tracks are best placed in the centre of the roads; (5) that main traffic roads should provide space for tram tracks, fast and slow traffic, and standing vehicles; (6) that the planning of main roads is a matter of national importance. With here and there a slight amendment, these resolutions were carried.

OUR PLATES.

Wallasey Town Hall.

THIS building, which forms the subject of our Centre Plate, will be set back 120 ft. from the premises on the west side of Brighton Street, with the result that a square about 300 ft. long will be formed in front of the Town Hall. Towards the river the building will be recessed some 125 ft. from the front wall of the esplanade, with a broad flight of steps to the plateau on which the building will be erected, about 31 ft. above the promenade. Steps and grass terraces will be formed. The structure will cover 4,142 sq. yds. The centre entrance faces Brighton Street. Close to it are the rates offices and the Treasurer's Department, with provision for the National Insurance staff on the left. A wide corridor leads to the grand staircase. The approach to the Town Hall is so set out that it may be used without any interference with the use of the offices. There is an additional entrance for the Public Hall, which measures 95 ft. by 50 ft., and provides for 920 seats in the ground floor, with 260 seats in the gallery. The Council Chamber figures out at 58 ft. by 32 ft. The Town Clerk's licensing department is on the second floor. The cost of the building will be about £80,000. The tower, as seen from the river, greatly adds to the dignity of the design, which is of the Renaissance style freely treated. The drawing was exhibited in this year's Academy. Messrs. Briggs, Wolstenholme, and Thornely, F.F.R.I.B.A., are the architects.

Main Entrance to the Brearley School, U.S.A.

As the thirtieth example in our series of architects' working drawings we illustrate (on pages 16 and 17) the elevations and details of the main entrance to the Brearley School, U.S.A., designed by Messrs. McKim, Mead, and White. This is a fairly representative

specimen of the more recent work of this distinguished firm of architects; and the drawing itself shows admirably the painstaking thoroughness with which working drawings are prepared in America, all the essential dimensions and details of materials being carefully indicated. We are indebted to "Architecture" for our illustrations.

R.I.B.A. Testimonies of Study.

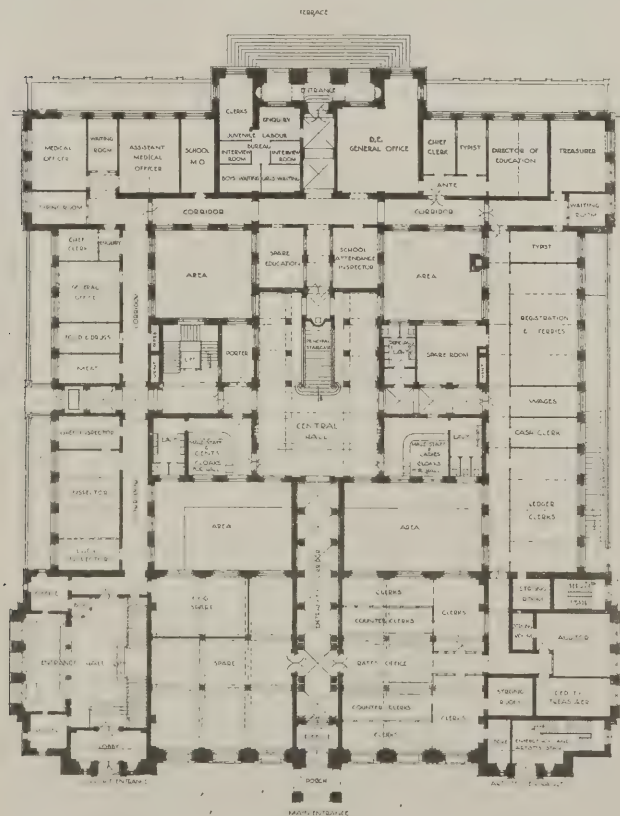
Subject VII. (a) in the above series was for a monumental staircase and vestibule to a large museum. We illustrate on page 15 a detail section of the approved design by Mr. H. Chalton Bradshaw (Liverpool University).

Palace of the Emperor Francis Joseph, Budapest.

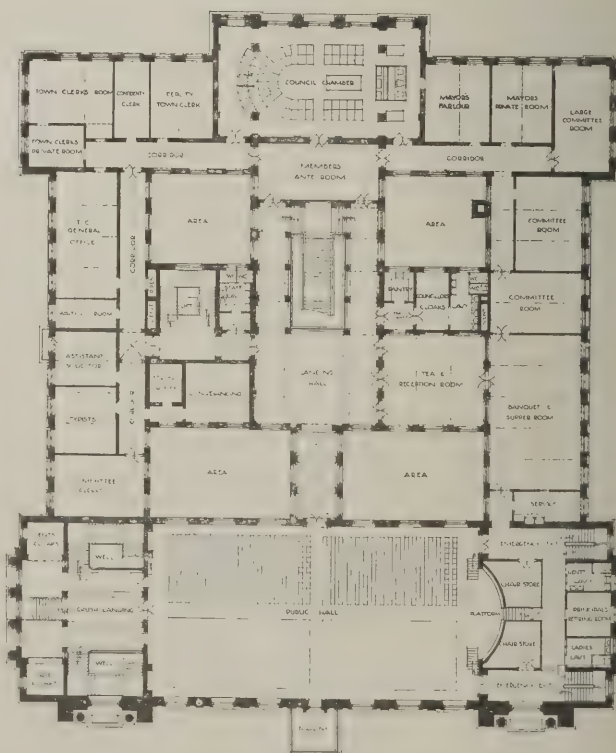
The Royal Palace (illustrated on pages 2, 5, 6, 11, and 13, and described in the article beginning on page 5), was erected by Maria Theresa in 1749-71, restored in 1849 after a fire, and greatly extended during 1894-1906 by Ybl and Hauszmann. The façade towards the Danube is 1,000 ft. long, and the central part is crowned by a dome 203 ft. high, and the building contains in all 860 rooms. The equestrian statue shown on the terrace is of Prince Eugene (Rena, sculptor).

SUBURBAN HOUSE COMPETITION.

IN our issue for June 11th we published the conditions of a new competition for elevations of a small suburban house, to be based on the plans placed first in our former competition. The prizes offered are £5 5s., £3 3s., and £2 2s., and the drawings required are: Front elevation of a pair of houses and back and side elevations of the right-hand house. To each drawing must be affixed the coupon which will be found on page xxiv. of this issue. The drawings, which must be sent in not later than July 11th, are to be to the scale of $\frac{1}{4}$ in. to the foot, finished in plain black and white or washed over and shaded in monochrome.



GROUND FLOOR PLAN



FIRST FLOOR PLAN

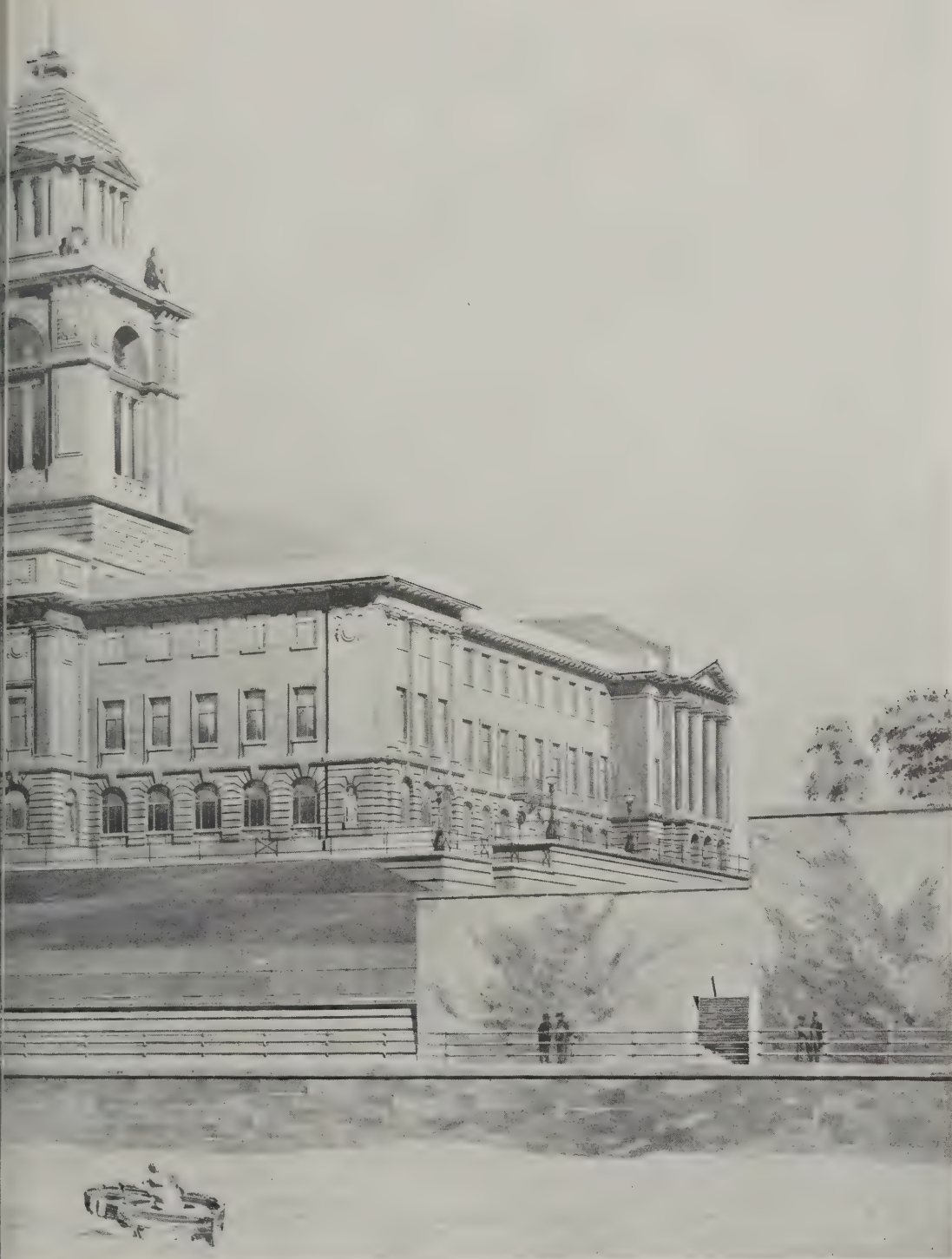
WALLASEY TOWN HALL: GROUND FLOOR AND FIRST FLOOR PLANS.

BRIGGS, WOLSTENHOLME, AND THORNELY, F.F.R.I.B.A., ARCHITECTS.



NEW TOWN HALL, WALLASEY. BRIGG

(Royal Aca.



WOLSTENHOLME AND THORNELY, ARCHITECTS.

(*y Exhibition, 1913.*)

CORRESPONDENCE.

The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.

Correspondents are asked to be brief, and to write on one side only of the paper

"Sash or Casement"?

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—In the trenchantly worded leading article in your last issue headed "Sash or Casement"? the writer prejudices a good case by several misstatements, which should not be allowed to pass unchallenged. After speaking approvingly of casements in stone mullions and metal frames, he goes on to allude slightly to "some cheap and paltry substitute, such as the painted wood of the garden suburb cottage," from which it is a fair inference that wood casements are an invention of recent years. This inference is strengthened further on in the article when we read: "but in old work . . . the mullions and transoms were in similar material to the walling." Of course, it all turns on the application of the word "old"—a word apt to be loosely handled—but it is certainly untrue to say that in the lesser work of the pre-sash-window era wood casements were unknown or uncommon. Sash windows also are usually "painted wood," but not on that account "cheap and paltry."

I am in complete agreement with the writer in his remarks as to the iniquity of so planning a house that the scullery is lit by a gigantic window crossing the sink, to balance a similar window lighting the drawing-room; but the fact is that in work on a small scale this sort of thing is almost inevitable if a formal style is to be adopted—hence the reason for the parallel existence of the two styles, the formal and the picturesque, or, as I would rather describe it, the natural.

EDWIN GUNN.

L.G.B. Standard Plans for Working-class Dwellings.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—With regard to the letter by "Surprised" in your issue for June 18th, I have also seen the standard plans and discussed them with others. I do not think they are meant for architects, as "Surprised" suggests, but are to take the place of architectural assistance and to be put into the hands of surveyors, who, knowing nothing about architecture, are, of course, fully qualified to take the job on.

The cottages, besides failing woefully with the staircases, as shown by "Surprised," seem to exhibit just the same old drawbacks that we know so well. There are one or two comparative novelties, as the bath in the scullery (so useful for holding potatoes or coal, etc.). There is nothing great about the plans certainly—as one might have expected from "Standard" plans. We may be thankful for one thing—viz., that no elevations were attempted. I have set up sections of these cottages from the plans and cubing, with interesting results. I find, *inter alia*, that a good deal of stooping will be required on the part of occupants!

Let us glance at the plans a moment. Type A. The right-hand cottage has the front door opening across the fireplace. Why this sudden change from the position of that on the left-hand plan? I don't quite follow. If the fireplaces had been on the party wall the right-hand porch would have been correct, and the stack, too, incidentally, and a £5 note would have been saved. The outbuildings should not be so visible from windows of house. Why that skewfronted cupboard? The top landing would be better for a little light, and might save a broken back or two.

Type B. The small bath would be very little use. Also the food store—unless intended for tabloids. The numerous cupboards will merely serve to collect rubbish in. In the alternative plan "food" is obtained

by cutting a piece off "scullery"—a most objectionable "get out" in planning, and the angle door a pure fad.

Type C. Why the strange shape to living-room? It will cost more to build and be of less use to live in than if it was square. Larder and coals would be much better transposed to get former away from w.c.

Type D, I note, has the old-fashioned passage, providing a splendid view of the scullery sink from the front door! When will this wretched feature finally die? As there is a parlour here, the stairs should of course open out of the kitchen. They are used daily, just as the kitchen is, while the parlour is only used for the reception of the district visitor, who is not the least bit interested in the stairs. "Food" is awful.

Type E. The living-room is a funny shape. The skirting will be mitred twelve times instead of four—and twice irregularly. There will be eight stopped ends. I wonder if all plaster angles will be in Keene's cement. The seat appears to be rather in the way, and is neither by the fire or window.

These houses, based so beautifully on pure theory, remind me forcibly of those scientific houses which Gulliver saw on his travels when visiting the land of the flying island. Mathematically correct in every imaginable way, these absurd houses were quite impossible to live in, and, if I remember rightly, the "tenants lived outside them in booths," etc.

DULCE DOMUM.

"Continuous Beams in Reinforced Concrete."

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—In your issue of June 18th there appears a criticism (written by Mr. Percy J. Waldram) of the above book, and I should be obliged if you would allow me the opportunity of briefly replying to it, and amplifying some of the statements made therein, which are not complete, and which if uncompleted are open to misinterpretation.

(1.) In the first place, the primary diagrams are all drawn to scale, and the scales given. The secondary diagrams are drawn on squared paper, and the information contained in them is repeated in the form of tables expressing the limiting bending moments in terms of the simple bending moments for the corresponding detached spans, and it is from these tables that designing should proceed, as is shown in the worked examples at the end of the book. Sufficient letterpress is added to make these tables perfectly clear to anyone who takes the trouble to study them carefully and consecutively.

(2.) The diagrams and tables and information generally apply not only to main beams, as might be inferred from Mr. Waldram's comments, but to any continuous beams, or slabs.

(3.) With reference to Mr. Waldram's remarks on the question of the dead load, his particular choice of words is capable of being misconstrued into meaning that no mention is made in the book of any allowance for dead load. Such, however, is not the case, and the question of dead load is fully considered, and allowed for separately in the tables, and not combined with the live-load diagrams in the form of an average allowance as advocated by him, for the reasons that greater accuracy is obtained by the method adopted, and at the same time a large increase in the number of diagrams is avoided.

(4.) With reference to his comments upon the treatment of the unequal loading upon beams, without allowing for the transverse strength of the columns, it is clearly stated in the book that the inside columns are assumed to carry only vertical loads and to be acting as props; the beams, on the other hand, carrying the full reversal of live load bending moment due to unequal loading of the spans; and that if the columns, on the other hand, are treated as carrying any share of the bending moment, then the full reversal of

bending moment in the beam need not be allowed; and that the outside columns must in any case be considered as carrying bending moment in addition to direct stress.

The effect of the assumption, and the allowance of full reversal of stress in the beams, is to allow the columns to be kept of smaller dimensions than otherwise possible, a matter of the utmost importance in the majority of cases.

Sufficient justification for the assumption may perhaps be found in the case of arched rib bridges of a number of spans, which have been constructed with intermediate piers consisting of single rows of piles. of no strength in themselves to carry anything but vertical loads, the negative bending moments caused by the unbalanced live load thrust being carried by the negative resisting moments of the adjacent spans of unloaded ribs.

It should also be remembered that, in many cases, systems of beams are only resting upon supports to which they are not joined, under which conditions Mr. Waldram's criticism does not apply.

BURNARD GEEN.

The Calculation of Reinforced Concrete.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—I regret to have overlooked a somewhat obvious misprint in the review of M. Nivet's book which appears in your issue of June 18th, page 651.

The equation $\frac{N}{d - N} = \frac{E_t}{E_c}$ or $N = D \sqrt{\frac{E_t}{E_c}}$ in homogeneous sections should be $\frac{N}{d - N} = \sqrt{\frac{E_t}{E_c}}$ or $N = d \frac{\sqrt{E_c}}{\sqrt{E_c} + \sqrt{E_t}}$.

PERCY J. WALDRAM.

"Fillets Embedded in Concrete."

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—The advice of your correspondent Thomas Potter, when writing upon concrete, may usually be accepted as sound and reliable; but when he states that a layer of bituminous composition "is quite unnecessary," I disagree. Surface concrete, when prepared for a boarded floor, should be absolutely bone-dry before the flooring is laid. But it sometimes happens afterwards that moisture is contracted beneath the boards, and Thomas Potter may find by taking up some of these boards—as I have found—dew-like beads of moisture on the underside of the boards. This might be explained if space permitted. Now, to guard against this and the risk of dry-rot, and to obtain that satisfactory feeling that all precaution gives, I strongly urge the desirability of using a layer of bituminous composition, however dry the concrete may appear to be.

In regard to the use of wood fillets embedded in the concrete, these are not absolutely necessary if the surface concrete be sufficiently pliant and homogeneous to receive and hold the nailing, but a more satisfactory job may be made by the proper use of properly prepared fillets.

New Southgate, N.

A. FINCHAM.

The Brickwork of Pentonville.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Permit me, not only on my own account, but also, I am sure, in the name of hundreds of other appreciative readers, to thank warmly the author of this most charming article for recalling many old associations, as

well as for paying a passing tribute of admiration to a neighbourhood dear to many of us.

I was born and bred in one of those old brick houses he describes so accurately and so well. Perhaps there are few, if any, still living who saw—as I did in my early 'teens—on a certain afternoon, during a severe thunderstorm in the early part of 1855 (fifty-eight years ago), the lightning strike one of the four large angle pinnacles surmounting the tower of Myddelton Square Church, its masonry tumbling down simultaneously with the flash. "R." is evidently exceedingly well posted in the history of that particular neighbourhood, but possibly is unaware of this incident.

I am glad the "Angel" is passingly included in the writer's remarks, "Angel, Islington," has so long been a 'busman's cry that comparatively few know the site of that ancient hostel is not in Islington at all, but in Clerkenwell!

Fair Park, Exeter, June 25th.

HARRY HEMS.

"Ubique" on Bandstands.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—"Ubique's" interesting observations on bandstands in your issue of June 11th, p. 614, induced me to write to the Town Clerk of Hunstanton for a photograph of one which has recently been erected there.

He has sent my letter to the architect Mr. Herbert Ibberson, F.R.I.B.A., who has kindly sent the enclosed photograph.

I think you will agree with me that this is a better design than that of many of the seaside bandstands.

J. H. KERNER-GREENWOOD.

King's Lynn.

[Mr. Kerner-Greenwood's letter, and the accompanying photograph, have been handed to our contributor "Ubique," who heartily agrees that this bandstand is of incomparably better design than the average specimen of this class of work. One can say of it without hesitation that, unlike most seaside bandstands, it possesses architectural character—is well proportioned, graceful in its lines, and tasteful in its detail. "Ubique" trusts that the standard thus set in Hunstanton will be increasingly followed elsewhere; because seaside resorts, at which such multitudes of people enjoy unaccustomed leisure for observation, must clearly have a powerful influence for good or ill on the public taste.—EDS. A. AND B.J.]



NEW BANDSTAND, HUNSTANTON.

HERBERT IBBERSON, F.R.I.B.A., ARCHITECT.



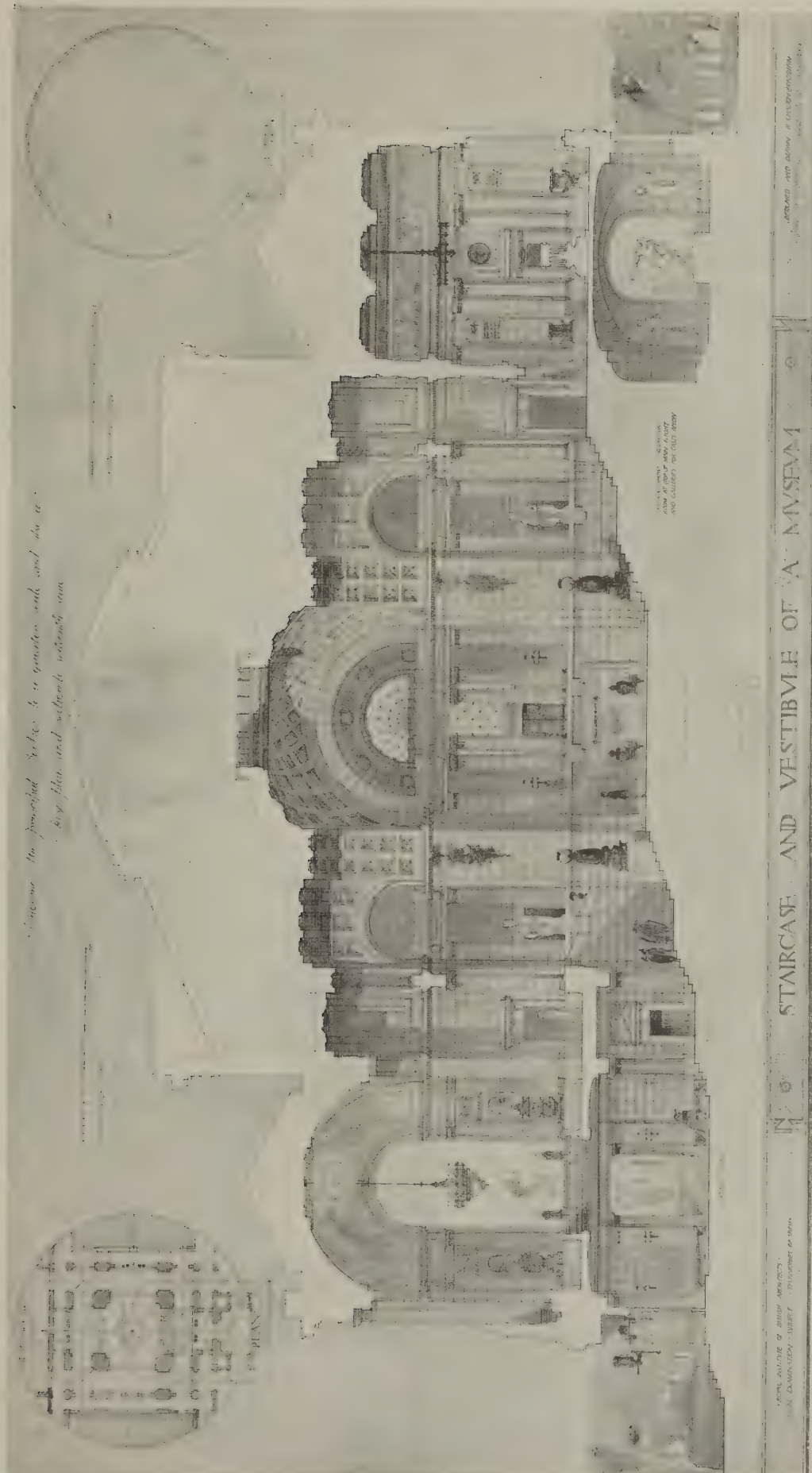
PALACE OF THE EMPEROR FRANCIS JOSEPH, BUDAPEST.

(See page 5.)



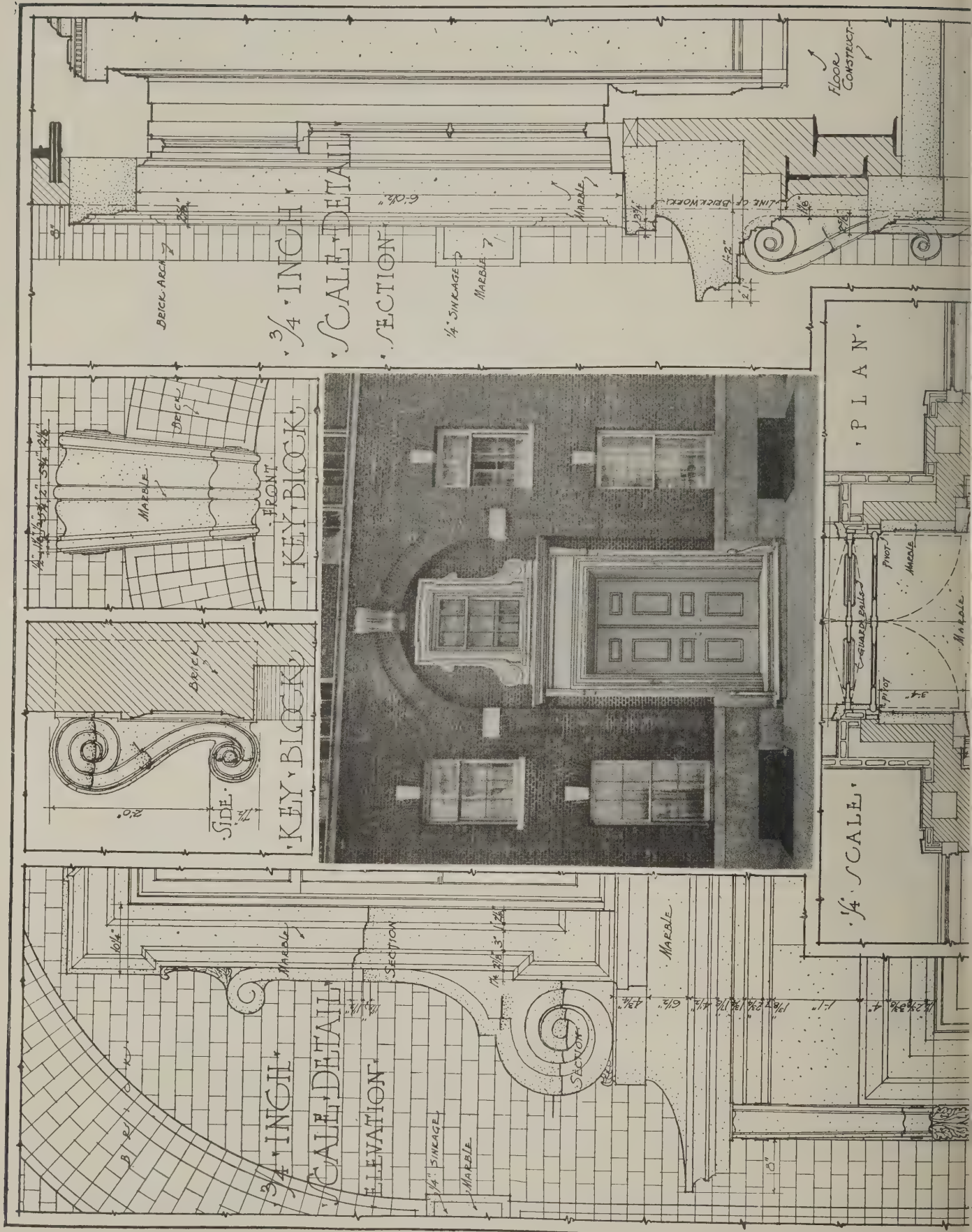
PALACE OF THE EMPEROR FRANCIS JOSEPH, BUDAPEST: VIEW ON TERRACE.

(See page 5.)



TESTIMONIES OF STUDY FOR R.I.B.A. FINAL EXAMINATION: APPROVED DESIGN, SUBJECT VII. (a). BY H. CHALTON BRADSHAW.

(See page 8)



THE MAINTENANCE OF GREAT CITY BRIDGES.

Some interesting particulars of the organisation and equipment for the maintenance, operation, inspection, repair, and renewal of the East River Bridges, New York, are given in a recent issue of the "Engineering Record":

The Department of Bridges of the city of New York comprises the division of design, where all new work originates; the division of construction, the division of shops and stores, and the division of maintenance—all under the direction of the commissioner, chief engineer, and a staff of consulting and assistant engineers. The different divisions have complete technical and operating organisations and large forces of mechanics, labourers, and skilled workmen, involving an aggregate annual outlay by the department of about £186,000.

The division of maintenance is in charge of the repairs, renewals, and operation of the bridges in and between all five boroughs. It comprises three sections, that of the East River bridges, the Harlem River, Manhattan and Bronx bridges, and the Brooklyn, Queen's, and Richmond bridges, the most important section being that of the East River bridges, which include the Brooklyn, Manhattan, Williamsburg, and Queensboro Bridges.

The Brooklyn, Manhattan, and Williamsburg structures are suspension bridges, while the Queensboro is a cantilever bridge. Sketch elevations, all drawn to the same scale, are here reproduced.

The massive structures require only periodical examinations, but the steel superstructures are under constant minute inspection. The routine and details differ somewhat on the various bridges, and considerable variation is due to the differences in the ages and types of structures and to the traffic conditions.

On the comparatively new Queensboro Bridge the work is well systematised, and one of the two inspectors every morning makes a trip across the full length of the bridge. This covers the general appearance and condition of the structure and is expected to disclose any obvious or important facts. Once a week all expansion joints are examined and measured. The remainder of the time of both inspectors is devoted to a critical examination of all details and connections, excepting as interrupted by the necessity for attending to various items of minor new work still being executed. Under these conditions the complete examination of the whole superstructure takes several months, and as soon as finished is repeated in the same sequence.

Heretofore considerable difficulty has been experienced in inspecting under the lower floor, operations which in the future will be facilitated by the use of permanent steel travelling platforms suspended from the underside of the bridge for use for riveting, painting, etc. A similar scaffold has also been recently provided for the Manhattan Bridge. Painting is also continually in progress on all of the bridges, and the painters, who acquire considerable familiarity with the details of construction, are required to report immediately anything unusual or apparently wrong.

Great attention is paid to the floor systems of all bridges, to the connections of floor beams and stringers, and to the rivets in all principal riveted connections, which are tested for tightness at each inspection.

In the Brooklyn Bridge, which has been thirty years in service and is loaded to a high ratio of its capacity, the principal features of maintenance include the examination, renewals or repairs of counters, centre connections, floor beams, trusses, loose rivets, damaged railings, and the track stringers in the approaches. All diagonal and suspender ropes are examined daily, and tension in them is approximately tested by feeling.

On the Williamsburg Bridge, which has been in service for about nine years, the principal repairs required are the tightening of loose sockets on the lower ends of the suspenders, the redriving of rivets in the steel floor and the renewal of corrugated iron in the sidewalk slabs. In winter the numerous expansion joints are constantly watched and cleaned to prevent the accumulation of ice at the sliding ends of the stringers. On both the Brooklyn and Williamsburg Bridges considerable work is constantly in progress in putting in new stairways and railings and changing and rearranging existing ones.

Wherever floor planks are used they require frequent renewal; wood block pavement is likely to buckle in the winter time and must be reset, and the surface of concrete asphalt pavement is subject to injury and requires frequent repairs.

The anchorages of the suspension bridges are examined frequently to see that they are kept dry and in good condition and that the anchor bars are not rusted. The remainder of the substructure requires little attention and occasional pointing comprises most of the repairs necessary.

Painting.

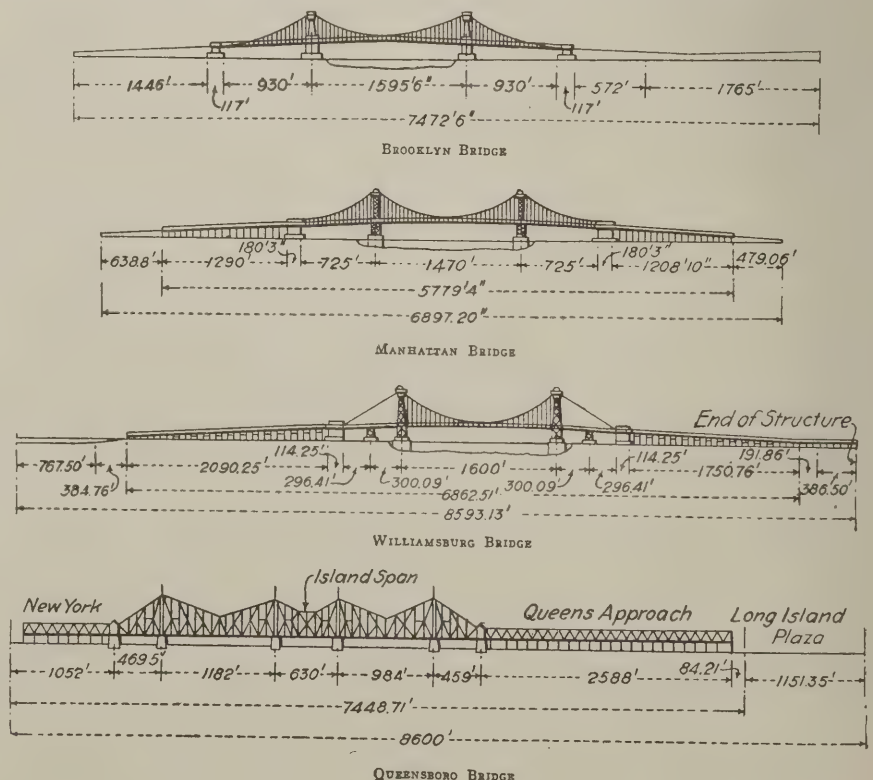
Next to the riveting the most important and expensive item of maintenance is the painting, which is in constant progress on all of the bridges at a rate probably about great enough to cover the entire surface one coat every two years, and some of the more vital and exposed portions perhaps as often as once a year. An average force of about 120 men is constantly employed and is sometimes increased to 175 or even 200 men. An average of 400 tons of white lead and 15,000 gallons of raw and boiled

linseed oil, together with eighteen tons of pigments, are used annually for these four bridges. They are applied by hand with ordinary brushes, no air brushes or other special appliances being used. The main cables of the suspension bridges and the top chords of the Queensborough Bridge are provided with 7-16-in. galvanised steel hand-ropes on each side which serve as guards for the painters who walk on the main cables or top chords while painting them. Most of the other painting is done from ordinary light painters' scaffolds handled by the painters themselves, except for the portions of the structure under the lower floors of the Queensboro and Manhattan bridges, which are reached from the movable scaffolds above referred to. On the Queensboro Bridge there are five of these scaffolds, propelled by hand; on the Manhattan Bridge there are six scaffolds, provided with electric propelling mechanism.

The foregoing particulars obviously possess considerable practical interest for those charged with the responsibility of maintaining the bridges in our own country, where, owing to the increase in heavy traffic, the subject has recently assumed high importance.

An East African Theatre.

A new theatre which has just been completed in Sixth Avenue, Nairobi, East Africa, shows, in the façade, a free treatment of late French Renaissance. The dominant feature of the principal entrance is a life-size figure of Mercury, holding a torch of 500 candle-power. Entrance to pit and pit-stalls is under shelter (50 ft. long by 12 ft. wide). Inside there are four boxes, two at stage level, and two ranging with the dress-circle, the former being decorated with life-size caryatids supporting decorated plaster arches. The dress-circle and balcony are cantilevered, admitting of an uninterrupted view of the stage from all parts of the house. Stone and concrete have been used in the construction. The architects are Messrs. Robertson, Gow, and Davidson, the contractor being Mr. James K. Watson.



LEGAL.

Water Board Charges to Builders.

In the Court of Appeal on June 18th, Lords Justices Vaughan Williams, Buckley, and Hamilton, heard the appeal by Messrs. Johnson and Co. against a decision of Mr. Justice Channell and Mr. Justice Avory in which the Metropolitan Water Board were allowed to recover 15s. for water used by Messrs. Johnson in building operations at Hounslow Barracks. In 1911 Messrs. Johnson erected an addition to Hounslow Barracks, and it was one of the terms of the contract that the necessary water should be supplied by the War Office free of charge to the builders, the War Office being then under a contract with the Water Board for the supply of water by meter. The Board, however, sued the builders in the County Court for payment at the rate of 7s. per £100 of the probable cost of the building, and the County Court judge found that under Section 17 of their Act the Board were entitled to recover. In the Divisional Court, Mr. Justice Channell thought that the finding of the County Court judge should be set aside, while Mr. Justice Avory thought that it should be affirmed. The County Court judgment was therefore allowed to stand, and the builders now appealed. In delivering judgment on the appeal, Lord Justice Vaughan Williams said that he agreed with Mr. Justice Channell that the defendants were not persons who required a supply of water within the meaning of Section 17 of the Metropolitan Water Board (Charges) Act, 1907. The words "who shall require a supply of water" meant persons who desired to become customers of the Board for their water, and no person was obliged to take the Board's water. The section merely gave builders the power to make an application to the Board for the supply of water as though they were owners or occupiers instead of being builders. Referring to a general resolution passed by the Water Board that no builder should be entitled to pay by meter for water used by him, but must pay 7s. per £100 of the total cost of the work, his lordship said he could not agree that this was a valid and sufficient determination under the Act. In his opinion the Water Board were bound to deal with each case separately, and to take the circumstances of each case into consideration for the purpose of deciding what deductions they should allow. Lords Justices Buckley and Hamilton delivered judgment to the same effect, and the appeal was allowed.

The Lumsden Case.

In the Court of Appeal, on June 25th, the Master of the Rolls, Lord Justice Kennedy, and Lord Justice Swinfen Eady, heard the appeal of Lumsden v. Inland Revenue Commissioners. It will be remembered that Mr. R. J. Lumsden, having built and sold a dwelling-house and shop at Forest Hall, Northumberland, was, in consequence of the sale, charged £25 in respect of an alleged gross increment value of £125. The Official Referee had decided that Mr. Lumsden was not liable to pay any increment value duty. Afterwards Mr. Justice Horridge held that in arriving at the increment value of the property, the value of the site diverted (£228) was to be deducted from the gross value (£658); that the balance so arrived at (£430), plus £00 for roads, had to be deducted from the purchase price (£750), being the sum of £230, which was the site value of the land on the occasion giving rise to the claim for duty, and

that duty was chargeable on the difference between that sum of £230 and £105, the original site value. From that decision Mr. Lumsden now appeals. At the conclusion of the arguments, their lordships said that they would take time to consider their judgment.

SUGGESTIONS FOR A NEW TOWN HALL.

Mr. H. Heathcote Statham, F.R.I.B.A., advocating, in a letter to a local newspaper, the erection of a town hall for Wimbledon, puts forward some excellent suggestions that admit of a wider application, since they enunciate some important general principles.

It would be, of course, Mr. Statham writes, imperative that a new town hall should be on a new site, so that the existing building should be available for business while the new one was in course of erection. Looking round the neighbourhood of the present town hall, and considering that any new town hall must be in the same neighbourhood and near the railway station, it seemed to him that the solution of the problem would be to acquire (if possible) the property north of Victoria Crescent and facing Queen's Road and build a new town hall on that, or on a part of, that site, so placed that it would form an island in itself, with streets on each side of it as well as in front, and so designed that the architectural centre of its façade should coincide with the centre or axial line of Queen's Road. An important building should always be led up to by an important street, and be centralised with it; a point to which great attention is paid in the placing of new city buildings in France, but which is almost invariably neglected in England. In London itself there is hardly an important building which is axial with anything in the street alignment.

In such a new town hall there should be, on the first floor, a public hall capable of seating, say, 800 persons. This would not only supply a want, but would be a source of revenue in letting it for political meetings, concerts, and other entertainments. The hall should be in the front of the building, as its exterior treatment would be emphasised architecturally, and assist in giving dignity to the façade. Council-rooms and committee-rooms should be at the back, so as to be away from the noise of the main street, but the council-room should be capable of being used *en suite* with the hall. That would enable the Mayor and Corporation to hold receptions, political or social, in a dignified manner, and on occasion the hall would be available for large public dinners, either given by the Corporation or by outside societies to whom the hall would be let.

There are various little considerations, Mr. Statham says, that are frequently neglected in the planning of town halls. For instance, he has had to go into many town halls on business, and he does not remember any case in which he had not to ask where the town clerk's office was. There ought never to be any occasion to ask that. The town clerk's public office is the main medium of communication between the official administration and the outside public, and it ought to be the first thing every visitor sees before him on entering the door from the street, so that there can be no mistake about it. Then it should be remembered that the Mayor and the town clerk have often to confer together, and their private rooms should be

close together. Mr. Statham has seen plans of town halls in which the Mayor and the town clerk were placed at opposite angles of the building. There is one little crux in connection with this point, however. The town clerk's public office must be on the ground floor. The Mayor's parlour certainly ought to be on the first floor, so as to be near the council-room and the hall (in case of receptions), and preferably with a private stair from the street. The best way of reconciling these requirements is to place the town clerk's private room close to the Mayor's on the first floor and above the town clerk's public office, connected with it by a special stair and lift, and, of course, speaking-tubes. The ground-floor town clerk's department would then probably consist of a public office, deputy town clerk's room, and fire-proof muniment room. There are probably not many persons who have a right to trouble the town clerk personally, so that his being on the upper floor would not be a matter of consequence from that point of view, and it would be the best way of meeting the convenience of all concerned.

THE CONDITION OF ST. PAUL'S CATHEDRAL.

Mr. Mervyn Macartney, architect to the Dean and Chapter of St. Paul's Cathedral, has informed a representative of "The Times" that the object of the recent visit of a party of architects to St. Paul's Cathedral was to inspect one of the piers supporting the dome, and also the buttresses of the cathedral. They examined the south-west pier in the crypt, which measured 45 ft. by 20 ft. It was found to have an outer skin of ashlar work, or dressed stone, varying in thickness from 6 in. to 18 in. The interior was filled in with rubble, among which were found all sorts of oddments, probably the remains of the previous cathedral. Among them was a portion of a Roman column.

The agglomerate was subjected to careful investigation. It was found to consist of large pieces of stone and mortar. The proportion of water in mortar is very large, and in the process of time the water evaporates. The consequence is that the agglomerate, which at one time no doubt filled the interior of the pier, has subsided considerably, and the dome, instead of resting on a solid mass 45 ft. by 20 ft., now rests only on the skin, varying in thickness from 6 in. to 18 in. It is assumed that the other piers are in a similar condition, and that the pressure of the dome therefore falls unequally upon its supports. It is intended to pump concrete into the pier and thus make it again a solid mass. Twenty-two out of the thirty-two buttresses are more or less fissured. Four of them have already been consolidated by pumping liquid cement into the fissures.

The clock tower is also under repair. It has been found that the iron dowels with which Wren bound the stonework together have so expanded with rust as to break the stone into pieces. The ironwork is being removed and new stone is being put in.

No doubt the grouting machine will play an important part in the work that is now being undertaken. Sir Francis Fox's description of this machine is given in the current issue of "Specification" (3s. 6d.; Caxton House, Westminster). It will be remembered that Sir Francis Fox, who has employed the grouting machine so effectively at Winchester Cathedral and elsewhere, has been called into consultation at St. Paul's.

NEWS ITEMS.

New Optical Works, Islington.

New optical works are being erected at Half Moon Crescent, Islington, for Messrs. Negretti and Zambra by Messrs. E. A. Roome and Co., builders and contractors, of 36, Basinghall Street, London, E.C. The architect is Mr. E. H. Major.

Captain Scott Memorial at Devonport.

Four stained-glass windows and two panels, which had been placed in the Royal Naval Barracks Chapel in memory of Captain Scott and the other victims of the Antarctic Expedition, were dedicated last week by the Bishop of Crediton. They had been subscribed for by officers and men serving in the barracks and ships based on Devonport, of which town Captain Scott was a native.

Changes of Address.

Messrs. Ivor Jones and Percy Thomas announce their removal to larger offices at 6 and 7, St. John's Square, Cardiff.

Mr. Matthew J. Dawson, A.R.I.B.A. (Atelier Laloux), announces that his addresses are now as here shown: 5, Selwood Terrace, Onslow Gardens, S.W. (Tuesday and Thursday), tel. 4621 Kensington, and School of Architectural Studies (University), Downing Street, Cambridge (Wednesday and Friday).

Visit to Chingford Reservoir.

On the final day of the London Conference of the Incorporated Municipal Electrical Association, the delegates visited King George's Reservoir at Chingford. They were, it is stated, "most interested in the pumping plant, which consists of an installation of the Humphrey internal combustion pumps." This pump having, by its extraordinary novelty, ingenuity, and efficiency attracted much attention, readers may be opportunely reminded that a full description of it, illustrated by a diagram, appears in the current edition of "Specification" (3s. 6d.; Caxton House, Westminster).

Concrete Storage Bins for Coal.

The large cableway connecting the port of Savona to San Giuseppe, built by a Belgian company, has required at both ends the construction of important concrete works. These include twenty-four rectangular storage bins, each of 400 tons capacity, at Savona, and forty-eight bins measuring 5m. on each side and 5m. high, of 100 tons capacity each, at San Giuseppe. The latter are connected with the San Giuseppe railway by a special branch line passing over a bridge (also built in reinforced concrete) which has a width of 5.50m. and is 132m. long, with eight spans from 16m. to 18m. each.

Site of Prestatyn Castle Discovered.

The excavations which have been proceeding at Prestatyn, Flintshire, under the superintendence of Mr. Thomas Edwards, archaeologist, of Chester, have resulted in the discovery of the site of Prestatyn Castle. It had been supposed that this ancient castle, built by Robert Bonastre in the early part of 1164, was nothing more than an earthwork. The walls of the castle proved to be almost entire, and one section which the workmen uncovered revealed good solid masonry 4 ft. thick at a height of 18 in. above the former ground level and a rougher masonry of 18 in. below the ground level. This was on a foundation of concrete made of cement, gravel, and lime, over a natural bed of calcareous tufa.

A Beaconsfield Statue for Aylesbury.

A statue of Lord Beaconsfield is to be set up at Aylesbury as a county memorial. It will stand near that of John Hampden, which was recently erected.

Manchester's King Edward Memorial.

It is expected that the unveiling of Manchester's memorial statue to King Edward, which is to be erected in Whitworth Park, will take place in September or October. The statue, which is to be of bronze, and has been modelled by Mr. Cassidy, of Manchester, will be ten feet high, and will occupy a granite pedestal 16 ft. square, which is already in course of erection in the park.

Restoration of a Wren Church.

The historic church of St. Mary Abchurch, which is one of Sir Christopher Wren's most noteworthy designs, and is embellished with carving by Grinling Gibbons, and with a ceiling by Thornhill, is about to be restored. The woodwork of the tower is a source of danger to the passer-by, and the roof is not water-tight. It is proposed to run a circle of electric lights round the dome for the sake of showing up the beauty of the ceiling, which at present is rarely visible.

Preserving the Crystal Palace.

The Lord Mayor of London has published a long letter in the earnest hope that the British community at large, both at home and beyond the seas, will support him in a last earnest attempt "to retain the Crystal Palace and its beautiful grounds for the benefit of the public for all time." It will be remembered that the Earl of Plymouth has acquired the property, in the hope that the public will re-purchase it for £230,000, the price (plus expenses) which he gave for it. The King has caused a letter to be sent to the Lord Mayor expressing the hope that the appeal will meet with liberal and sympathetic support.

New Sewerage Works at Carr Vale.

The official opening of the Bolsover Urban District Council's new sewerage works at Carr Vale took place on May 27th. The works, which were begun just over a year ago, have cost about £2,300 and were designed by Mr. W. G. H. Browne, the council's engineer. The works were designed to deal with the sewage from 650 houses, and it is assumed that the volume will be 32,500 gallons for twenty-four hours' dry weather flow. The anaerobic tank can deal with 100,000 gallons daily, and the capacity of the detritus tank is 5,000 gallons, and there is also that essential part of all modern disposal works, a humus tank. The old six-inch sewers in Charlesworth Street and Railway Sear Street have been replaced by nine-inch sewers, and the six-inch sewers in Bathurst Road and Scarsdale Street have been utilised as surface water drains, and new nine-inch sewers have been laid beside them. In the construction of the anaerobic tank "Pudlo," a preparation supplied by Kerner-Greenwood and Co., King's Lynn, has been used. The engineer pointed out the marble-like appearance of the walls of the tanks, the entire absence of cracks and "weeping," and the stability of the structure, and gave full credit to the part played by the above-mentioned preparation in securing these results. The cost of the works was only slightly in excess of the estimate sum of £2,000.

PROJECTED NEW WORKS.

New Schools for London County Council.

The Council are now considering the annual estimates for education, the estimates of expenditure on capital account amounting this year to the huge sum of £1,000,000. The total education bill is £6,280,320.

Letchworth Wesleyan Church and Schools.

The designs of Messrs. George Baines and Son have been adopted for the above, and the first section, at an estimated cost of about £5,000, is to be proceeded with at once.

Town Hall, Penistone.

Penistone Town Council have obtained Local Government Board sanction to borrow £4,100 for their town hall scheme, and have sealed the builder's contract. The work is to be finished by the end of next March.

Public Hall, Hull.

A new public hall, to be known as the Metropole, is to be built off King Edward Street, Hull. It will contain various rooms in which meetings and concerts can be held, and the Hull Master Builders' Federation have arranged for the inclusion of a Building Trades Exchange.

Marylebone Town Hall.

The Marylebone Borough Council have accepted the tender of Messrs. J. Greenwood, Ltd., at £73,168, for the erection of their new town hall, on the site in Marylebone Road recently purchased from Lord Portman. The contractors are under a penalty to put up the new building in twenty-one months. The total cost, it is estimated, will be nearly £150,000.

Hospital Extensions, Sheffield.

Sheffield Board of Guardians have approved of the report of the Hospital Committee recommending the expenditure of £36,137 on the following extensions: Nurses' home, £7,600; children's hospital, £16,819; alteration of present children's hospital for mental cases, £1,100; three-storey hospital block, £10,618. The report was adopted by seventeen votes to ten.

New Municipal Works.

The Local Government Board have decided to hold, or have recently held, as the dates may indicate, inquiries into proposed expenditure by public bodies as follows: Sewerage, Drainage, and Sewage Disposal Works.—Hailsham Rural District Council, for Polegate, no amount stated; Tollington Urban District Council, £21,450 (July 2); Shoreham-by-Sea Urban District Council, £25,000; Sheffield City Council, £26,969 (July 3); Water Supply.—Cheadle Rural District Council, £5,600, for Warrington, Cellarhead, Witley Rocks, and Cheddleton (July 1); Goole Rural District Council, £1,360, for Swinefleet (July 2). Street Improvements, Public Works, etc.—Southgate Urban District Council, £2,283 (July 30); Prestwich Urban District Council, £1,062; Sheffield City Council, £15,171 and £16,307 (July 3). Various.—Sutton-in-Ashfield Urban District Council, fire station, fire engine, conveniences, £1,350 (July 30); West Hartlepool Borough Council, electricity undertaking, £4,330; Peterborough Rural District Council, housing, £9,700; Hayes Urban District Council, fencing, £1,200; Sheffield City Council, electricity undertaking, £130,860 (July 3).

THE R.I.B.A. FINAL EXAMINATION: MODEL ANSWERS.

BY C. PERCIVAL WALGATE, A.R.C.A. Lond. (Architecture), A.R.I.B.A. Grissell Medallist, 1910, R.C.A. Travelling Scholar.

CONSTRUCTION. FIRST PAPER.

$3\frac{1}{4}$ hours allowed.

1. A section is given through the ground floor, basement, and back wall, of a house built upon the side of a hill. The ground slopes upward from the back of the house at an angle of twenty degrees, and consists of a layer of sand eight feet thick resting upon wet clay ten feet thick (measured at right angles to the slope), below which there is solid rock; the surface of the clay and rock being parallel with the surface of the ground.

distance from front to back of the wall-base, and the distribution of stress in this case is represented by a right-angled triangle upon the base-line. The stress commences at zero at the back of the wall and reaches its maximum at the face. The maximum stress must be kept to the safe working resistance of the material of the wall. The resultant stress can be resolved into vertical and horizontal forces, and the latter examined with the resistance to sliding presented by the material of the wall, but this is usually amply provided in a

wall designed to resist the overturning and crushing forces.

A stream seven feet six inches wide and two feet deep runs through a garden between two banks. The banks are to be supported by rough rubble retaining walls, having a difference in level of four feet. These retaining walls are to be finished with a balustrade on either side in wrought stonework.

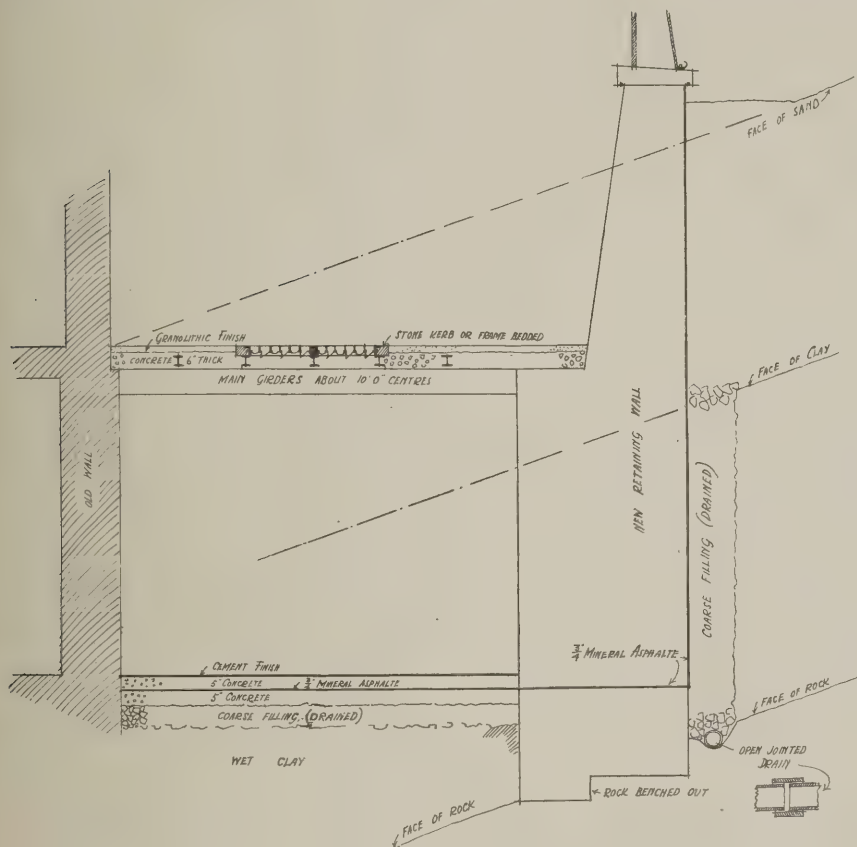
It is also proposed to connect the banks by stone steps, eight feet wide in the clear, carried upon a segmental stone arch having a span of about ten feet.

The axial line of the steps is to subtend the axial line of the stream below at an angle of seventy-five degrees.

Draw to scale, two feet to an inch, plan and section showing the steps, balustrade, arch, and foundation, giving particular attention to the jointing of the stonework.

Answer.—See diagram below.

(To be concluded.)



Question 1.

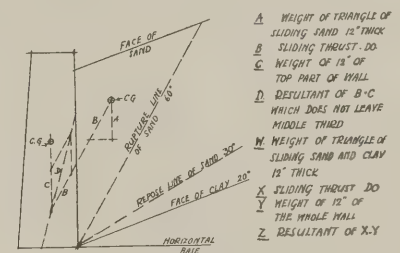
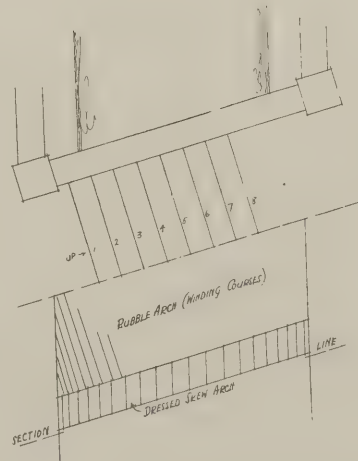
It is proposed to excavate into the hill-side to form a continuation of the basement, with a paved yard over it, fifteen feet wide, level with the ground floor.

A brick retaining wall is to be erected to keep back the earth against the basement and yard.

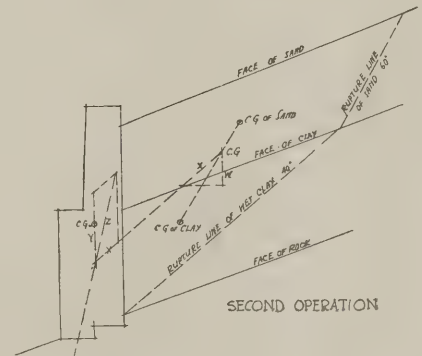
The floor of the yard is to have pavement lights over the extended basement.

Draw to scale, two feet to an inch, a section through the retaining wall, the extended basement, and the yard, showing in a general manner how you arrive at the required thickness of the retaining wall, and the method you would adopt to keep the basement dry.

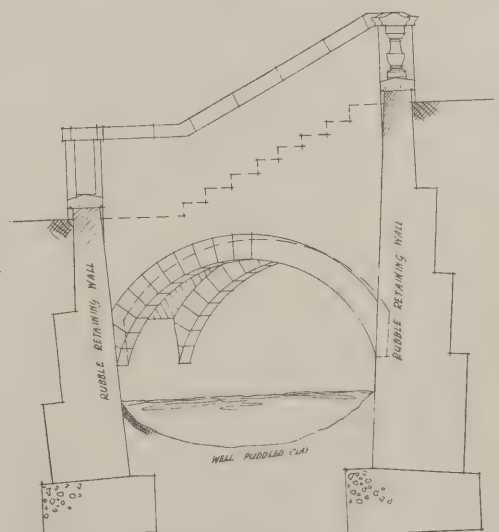
Answer.—The two diagrams represent roughly the graphic calculation giving the direction, centre of application and amount of the stresses acting on the wall. The resultant stress line is made to pass through a point one-third of the



FIRST OPERATION



SECOND OPERATION



Question 2.

MOTOR NOTES FOR BUILDERS AND CONTRACTORS.

[Specially Contributed.]

Overloading Commercial Motors.

I HAVE seen several letters from manufacturers of motor delivery wagons and trucks which point to the unmistakable fact that the biggest factor working against satisfactory vehicle operation is the overloading evil, and, further, that overloading is due largely to a desire for speed on the part of the shipping clerk or the other transportation engineer in charge of the work.

It is almost impossible to conceive why a transportation official wishes to overload and continues to overload when it is his most expensive item for the entire year. Overloading with high-capacity vehicles not infrequently causes more expenditure in extra tyres than it would cost to operate an additional vehicle, yet the average shipping clerk or transportation head persists in doing it, although at the same time he is aiming to keep transportation costs as low as possible.

It is apparently an example of conscious ignorance, conscious in that not a buyer but has been warned of the overloading feature, and ignorance in that the shipping clerk, while generally aware of the overloading troubles, has not been sufficiently convinced that every case of overload costs money. Because the tyres are rubber and can be compressed, this shipping clerk imagines that they are not injured. He cannot see any injury, and so, ostrich-like, imagines, to his own apparent satisfaction, that there is not any danger near. When the final wrecking of the tyre appears there are so many open doors for excuses that the overloading evil is made to be the least, if it exists at all. Speeding and rough streets are generally first blamed, and then, perhaps, overloading, but it is so difficult to prove overloading that generally it gets away without even a taint.

Owners of trucks will sooner or later awaken to the expense of overloading and overspeeding. It may require one, two, or perhaps three years to convince some of the more doubtful that overloading actually injures rubber, but once they awaken and become conscious of the cost of overloading it will not be surprising to find a load being weighed as carefully as if it were being shipped by a railroad at a freight or express rate of charge. The installing of such a weighing outfit would be an economical investment for any large concern. The scales could be placed near the warehouse door or on the shipping platform, so that weighing of the different packages or crates would add but slightly to the time of preparing the load. Such a procedure would give the owner a most excellent check on the amount of work done, which, taken in connection with the miles travelled and hours consumed, would furnish him with those necessary data on individual transportation which he is so much in need of at the present time. It would be a quick and ready means of taking the question of transportation out of the problematic field and putting it on as systematic a basis as the other departments of his business.

Scores of concerns are selling trucks every day, and these trucks from the day of installation are being overloaded, overspeeded and under-cared for. There is not any common sense in this method of operation. Taking every advantage at one end and not giving a moiety of the

desired attention at the other end, it is a case of all grabbing and not a bit of giving. It is imperative on truck makers to give every effort to rectify this existing abuse. They should do it in justice to their trucks; they should do it in justice to themselves, and they should do it in justice to the entire motor vehicle industry. The present regime of overload, overspeed, and under-care is working a great injury, is placing a load on the shoulders of the legitimate truck builders which they are able to bear because the truck is so well made that it can in an average of cases more than make good in spite of the handicap it is operating under.

Truck dealers in large cities could not do better than aim at educating the shipping clerks by a series of letters or by other means, such as calling meetings where they could be addressed on the evils above mentioned.

With hundreds of concerns the shipping clerk is the be-all and end-all of the delivery system, and it is he who must be reached in order to correct these abuses. To make the truck sale it may be necessary to outline the situation to the executive heads of the company but once the truck is in actual operation it is then to the shipping clerk and driver that efforts of education must be directed.

Utility v. Fashion.

Fifty per cent. of the motor vehicles of under one-ton capacity is sold with a standard design of body as fitted by the makers, the other 50 per cent. is sold without a body, the buyer preferring to use his old-time body-maker who fitted all of his horse-drawn vehicles. It is in this type of motor vehicle that special body designs are needed rather than in the five or seven-ton truck, because the vehicle of under one-ton capacity is generally working the package delivery field, where it is necessary to make seventy-five to 100 stops per day. Because of this every feature of design that will save a fraction of a minute in each delivery should be made use of. Instead of only 50 per cent. of these vehicles being sold without bodies there should be nearly 100 per cent. sold as chassis only, a fact which would impress the buyer with that important fact that upon the features of body design largely depends the economy of operation of the vehicle.

The last Commercial Vehicle Show exhibited a lamentable dearth of inventive genius in the matter of interior body design for the light package delivery vehicle. The customary box-type body, with rear doors, a floor, walls, and top, was very much in evidence, and there were remarkably few examples of bodies in this class specially designed for the job with the view of economising time in house-to-house or neighbourhood delivery.

There were many examples of quite useless bodies exhibited, bodies which it appeared on the surface were made solely for appearance, and which, when in actual use, would be the greatest possible consumers of time in house-to-house delivery work.

The solution of these bodies was found in some of the other exhibit spaces where a single driver's seat is used and the space beside it forms an aisle through which the driver can walk back into the package compartment and secure any package

without his ever having to go around the rear end of the vehicle, which, although provided with doors, only uses these for loading at the warehouse or store. Two or three makers have grasped the necessity of some safety features in their delivery wagons, and where they fit a single driver's seat, with an aisle beside it leading to the package compartment, they guard this with a sliding screen door, which automatically locks when the driver is making a house delivery. This precaution is specially necessary where valuable goods are being delivered. This door should have an automatic lock, as mentioned, although several body types were shown in which an awkward padlock was fitted, which must of necessity require time to either lock or unlock.

There is a pronounced tendency among American manufacturers of light package delivery vehicles to fit the steering wheel on the left side, a construction which permits of the driver always stopping with the right side to the kerb and getting out on that side. Hand-in-hand with this arrangement the use of a sliding or swinging side door goes very satisfactorily, as it saves the time of the driver or delivery boy having to open the rear door. The swinging side door is most in demand, but the sliding door would be preferable, in that the swinging door interferes with the driver and necessitates his alighting on the ground before he can reach the package compartment. With a sliding door and suitably designed step or running board there would not be any necessity for alighting on the ground, thus economising time considerably.

The Rational Driver's Cab.

Owners of large trucks, with load capacity in excess of three tons, should give more attention to the driver's cab than is at present given by not a few concerns. With a motor truck there is not any reason why the driver should not be kept warm and well protected from the weather, as the additional weight added is not great. Truck owners must realise that the drivers' protection is a good investment, excepting where the driver takes advantage of it to waste time, which he would not be so inclined to do in cold weather if the cab did not afford him the protection he looked for. Such are local problems, which every concern must solve, but the fact remains that the comfortable cab is a big factor in large trucks, which must work from morning to night on the coldest day of the year, on the hottest day, or on the wettest day.

Depression in the Slate Trade.

It is stated in the "Manchester Guardian" that preliminary steps have been taken among owners, managers, and agents of North Wales slate quarries for the formation of a combine, the object of which will be to regain for the slate trade the position it has lost within the last few years by reason of the inroads made by substitutes for slates as roofing material. Though the slate industry showed signs of looking up a few months ago, it is now stated that its condition is more serious than it had been for forty years. This depression is due to inactivity in the building trade, and, where there is building going on, to the introduction of roofing materials other than slates.

FIRE PREVENTION NOTES.

Sheer Arson.

Fireproofing methods, no matter how perfectly elaborate, can offer no certain guarantee against arson, but nevertheless they minimise the risks from deliberate and intentional fire-raising, as well as those from mere accident. Arson from without—that form of it which consists of breaking into a mansion or a church for the purpose of setting fire to it—would be too difficult to come within the range of practical politics if it were known that buildings were as a rule highly fire-resisting. Instead, it is known that they are easily combustible, and such knowledge is the real determining factor in the wicked campaign of fire-raising that is disgracing our civilisation. If fire-protecting methods were general there would be as little temptation to try to burn out a church as to attempt to fire Stonehenge.

Fire Protection of Churches.

Churches are notoriously ill-provided against fire. They necessarily contain a great deal of woodwork, and this is seldom or never treated with any of the available means of rendering it fire-resisting; and the exposed roof timbers, often of very light scantling, blaze at the first lick of a flame. So deplorably common had the destruction of churches by fire become, long before any inflammatory feminist movement had accentuated the evil, that in 1911 a joint-committee representing the Lower House of Convocation and both Houses of Laymen for the provinces of Canterbury and York was appointed to consider the better insurance of ecclesiastical buildings.

Their report, issued a month or two ago, emphasises the importance of effecting adequate insurances against fire on the fabrics and furniture in their charge: "fabrics" being, of course, the grandiose way of referring to the church buildings, not to the flimsy textiles—gowns, surplices, and so forth—that, loosely hanging in the vestry, have been in many instances the effective cause of the destruction of churches by fire. They should be kept within cupboards or "wardrobes" of non-flammable material.

A Question of Insurance.

It is, of course, of great importance that churches should be adequately insured, and it is painful to read that in a vast number of instances they are not, and for this reason the House of Laymen urge upon archdeacons and rural deans their responsibility for making periodical inspections of the churches in their districts "to secure their proper protection against fire." If this phrase is to be taken literally, and not, as we suspect, as meaning a mere comparison between the apparent value of the building and the amount for which it is insured, the arch-deacon or the rural dean certainly ought to be accompanied on his visits of inspection by a competent expert; otherwise, with all respect for the dignity of his office, they are not likely to be profitable for doctrine or for practice. Except in an extramundane sense, he is not likely to know much about fire-protection. A point upon which too little stress has been laid is that if a little money were spent on fire-prevention the premiums would be less costly and the money laid out in improving the building (for by thus doing all things decently and in order the church would look all the better, as well as being made more safe by the fire-protection measures) would in course of time be recovered on

the cheaper rates of insurance. And the older the church the greater will be the responsibility of preserving it from the ravages of the most deadly enemy of ancient buildings, and the greater the need for overhauling the heating apparatus, renewing the lightning conductor, and perhaps treating the tinder-like timbers with some fire-resisting coating. A church is often likened symbolically to a ship and a practical turn might be given to the similitude by giving the church what is never absent from the ship—an efficient fire-extinguishing equipment; but one too rarely sees hose, fire-buckets, grenades, extincteurs, or sprinklers available for out-breaks of fire in a church.

Hints as to Infirmaries.

Fire-protection in hospitals and infirmaries is a matter of peculiar importance because of the helplessness of most of the inmates; and yet it is stated, on the authority of a writer in the "Hospital," that in infirmaries of the old type little exists in the way of really effective preventive means. A few hand-buckets, he says, perhaps a fire-extinguisher of antiquated make, and half a dozen hand grenades, hidden away where they are unlikely to be found in moments of emergency, represent all that the staff has to fall back upon when a fire does break out. In modern hospitals, however, fire-risks are never underestimated. They are, indeed, recognised as being exceedingly serious, and precautions are taken to guard against them by every possible means. The superintendent, if his is an old building, should consult with the architect and devise ways in which additional precautions can be taken by rendering certain portions of the building fireproof. Nowadays all institutions of this kind are built with fire-proof floors, ceilings, and walls, but (the "Hospital" writer adds) it is quite possible that, in poor-law infirmaries, considerations of economy may have caused guardians or architects to adopt inferior methods and thereby to have added to the risks. The mistake is often made of constructing the fire staircase too steep and too narrow to permit of two nurses carrying comfortably down it a patient lying on one of the ordinary ward beds. The staircase should be divided into fairly easy stages with spacious landings, and should have a fairly high guard-rail. The emergency exit should open flush with the ward floor, as to have a step here is to court disaster when the exit has to be hurriedly used; and the exits must all open outwards—a point that, one is amazed to learn, is often neglected.

Alterations in Bath Abbey.

The organ of Bath Abbey, built some eighteen years ago by Messrs. Norman and Beard, and erected in the north and south tower arches, has recently been removed and will shortly be re-erected on a lofty oak screen designed by Sir Thomas Jackson, R.A., in the north transept. The removal of the organ from its original position has had an excellent effect. The height from the floor to the ceiling is 75 ft., and the massive piers of the tower are now seen rising unbroken. It is possible now, after many years, to see the south transept window, filled with glass commemorating the recovery of the late King Edward—then Prince of Wales—from typhoid fever. A fine view is also opened up from end to end of the transepts, and the general effect is to increase the apparent size and dignity of the building.

SOCIETIES AND INSTITUTIONS.

EDINBURGH ARCHITECTURAL ASSOCIATION.

Visit to Haddington.

A party of the members of the Edinburgh Architectural Association have visited Haddington, and, under the leadership of Dr. J. G. Wallace James, examined various ancient buildings of interest. The old Bothwell House, now in ruins, and traditionally associated with Mary, Queen of Scots, was first inspected. Mrs. Carlyle's house, St. Martin's Church (a late Norman structure), and the old Nungate Bridge over the Tyne, were visited in turn, after which the party went to the Abbey Church of St. Mary, which was built in the first half of the fifteenth century. The choir and transepts are in ruins, but the nave is used as the parish church. Dr. James showed a selection of ancient deeds and documents of historical interest from his extensive collection, one of which was signed by Cardinal Beaton, and had his seal affixed. The party went on to Lennoxlove, where, by kind permission of the proprietor, Mr. W. A. Baird, they were shown over the mansion, the ancestral home of the Maitland family. The ancient castle on the L plan, which dates probably from the first half of the fifteenth century, was formerly called Lethington, and is now incorporated with a more modern mansion. The ancient baronial hall has lately been restored as far as possible to its original condition, and was viewed with great interest.

ROYAL SANITARY INSTITUTE.

Congress at Exeter.

The Twenty-eighth Congress of this Institute will be held at Exeter from July 5th to 12th, under the presidency of the Right Hon. Earl Fortescue, K.C.B. More than 230 authorities, including Colonial Governments and Government departments, county councils and other sanitary authorities, universities, and societies, have appointed delegates to the meeting, and as the Institute's membership numbers over 4,000 a large gathering is expected. Sir William J. Collins, D.L., J.P., F.R.C.S., M.D., will give the lecture to the Congress on "The Chadwick School of Thought—an appeal from the new sanitarians to the old," and about sixty papers will be brought forward for discussion under the various sections.

INCORPORATED CHURCH BUILDING SOCIETY.

Annual General Court.

In the ninety-fifth annual report of the Incorporated Church Building Society, which was adopted at the annual general court held at the Church House, Dean's Yard, Westminster, and is now published, it is stated that the demands upon the usefulness of the society appear to increase rather than to diminish, and that its income continues to show signs of decided improvement, nearly a hundred new annual subscribers having been enrolled during the past year. In deploring the death of prominent members, the Committee add that "from the members who had done for many years yeoman service on the more technically architectural side of the Society's work, the death of Mr. Norman Shaw, R.A., is a loss of almost national importance." We notice that the honorary consulting architects to the Society are—Mr. W. H. Bidlake, Mr.

W. D. Caröe, Mr. C. H. M. Mileham, Mr. Temple Moore, Sir C. A. Nicholson, Mr. E. S. Prior, Mr. G. H. Fellowes Prynne, Mr. J. Oldrid Scott, Mr. C. S. Spooner, Mr. Walter Tapper, Mr. E. P. Warren, and Sir Aston Webb, R.A.

It is recorded that the Society has been instrumental in aiding in the erection of 2,716 new churches, and has assisted in rebuilding, enlarging, or otherwise improving 6,844 other churches; the sum voted by the Society towards such works amounting to £1,093,925.

LANCASHIRE, CHESHIRE, AND NORTH WALES BUILDING TRADES EMPLOYERS' FEDERATION.

Annual Meeting.

The newly-elected president of this Federation, Mr. N. R. Stirling, of Liverpool, speaking at the annual meeting, which was held in Manchester recently, said the first step of the Federation was protection against the demands of the workpeople. They had passed that phase, and now they wanted more loyalty one to another in respect of dealings with their clients and architects.

The conditions with regard to contracts were unjust. Architects, when they complained about the conditions, turned round and said, "If you will not sign them, there are others who will." It was for the Federation to get these things adjusted; and, with loyalty, they would be able to command the greatest respect.

The Associations now affiliated to the Federation numbered forty-seven, fourteen new Associations having been formed during the year, and as a result a healthier tone had been drafted into the districts.

Mr. James Ramsden, of Bury, and Mr. W. Tinker, of Manchester, were elected vice-presidents, with Mr. W. Croasdale, of Preston, treasurer.

BUILDING TRADE LABOUR UNREST.

South-East Lancashire.

Present indications are that the unauthorized strike of 400 joiners in South-East Lancashire districts will have far-reaching effects, and it is not at all improbable that unless the men adopt a more conciliatory attitude the employers may reply by a lock-out affecting 50,000 men employed in the building trade in Lancashire, Cheshire, and North Wales. It has been unanimously decided at a meeting of the master builders "to ballot the whole of the members of the Lancashire, Cheshire, and North Wales Federation, with a view to a lock-out, the same to be put into operation should the Conciliation Board fail in a settlement." The whole trouble has arisen through the 400 men who had been on strike seven weeks refusing to meet the local Conciliation Boards, in defiance of the rule which provides that no strike must take place until the points in dispute have been referred to the board. A deadlock has thus arisen, and with both parties to the dispute showing an unrelenting attitude, the outlook is distinctly unfavourable.

Portsmouth.

As long ago as last September the Portsmouth United Building Trades Committee decided to approach the master builders for higher wages to meet the increased cost of living and the enhanced

charges for rent. In November a request was sent in for an increase of one penny per hour all round with a reduction of the working hours in the summer by two and a half hours per week, making the time from 5.30 a.m. to 5 p.m. Six months' notice to this effect was given to the master builders. Many conferences have taken place between the United Committee and the representatives of the Master Builders' Association, and at length the latter body offered to give an advance of 1d. per hour to the painters and ½d. per hour to all other grades from July 1, and from May 1, 1914, to increase the pay of all grades (other than painters) by a further ½d. per hour, and also from May 1 next to assent to the reduction of the working hours in the summer by two and a half a week. All the branches have agreed to accept the offer. Throughout the negotiations good feeling has prevailed.

Rugby.

The strike in the building trade at Rugby threatens to extend to other branches at an early date. The carpenters gave notice that unless the dispute was at once settled they would withdraw the men from the shops where blackleg labour has been introduced since the strike began about a month ago. This may result in a general carpenters' strike. At a subsequent meeting of the master builders little was done beyond the resolve to adhere to the position already taken up. The men, on the other hand, express a determination to abate nothing on the demands they have made.

TRADE AND CRAFT.

Rubino Tiling.

Samples have been forwarded to us by Messrs. James T. Goudie and Co. (branch of the Leyland and Birmingham Rubber Co., Ltd.), 49, Queen Street, Glasgow, 24, 26, 28, and 30, Duke Street, Aldgate, London, E.C., and elsewhere, of the Rubino tiles. These consist of some form of rubber composition, backed with canvas, and being about a quarter of an inch thick, are of delightful resiliency. These tiles are being extensively used for covering the decks of ships and yachts, the floors of public buildings, banks, and offices, and in other situations in which noiselessness is specially valued. They have, we are assured, extraordinary wearing properties, and their appearance certainly supports this claim, as well as that of their being an entirely sanitary covering and unaffected by atmospheric conditions. They are, moreover, of excellent appearance, both as to colour and pattern. The booklet accompanying the samples shows that any desired tint can be produced and that the designs are limitless—geometrical or floral, simple or ornate—in any required style to harmonise with any particular environment. Some of the samples are exactly square (9 in. or 6 in.), others are octagonal; some are solid, and others perforated for the insertion at will of ornamental patterns and centre-pieces of various colours—an ingenious arrangement which admits of the trying of various decorative effects until a satisfactory scheme is obtained, or of the easy renewal of the parts that, being central, are subject to most wear—a contingency, however, that the extreme durability of the material renders highly improbable. A more luxurious form of floor-covering could hardly be devised.

R.I.B.A. EXAMINATIONS, 1913-14. THE FINAL: ALTERNATIVE PROBLEMS IN DESIGN.

The following official announcements came to hand at the moment of going to press:—

Instructions.

1. The drawings, which should be on uniform sheets of paper of not less than Imperial size, must be sent to the Secretary of the Board of Architectural Education, Royal Institute of British Architects, 9, Conduit Street, W., on or before the dates specified below.

2. Each set of drawings must be signed by the author, and HIS NAME AND ADDRESS, and the name of the school, if any, in which the drawings have been prepared, must be attached thereto.

3. All designs, whether done in a school or not, must be accompanied by a declaration from the Student that the design is his own work and that the drawings have been wholly executed by him. In the preparation of the design the Student may profit by advice.

4. Drawings for subjects (a) are to have the shadows projected at any angle of 45° in line, monochrome, or colour. Drawings in subjects (b) are to be finished as working drawings. Lettering on all drawings must be in a clear scholarly character.

Subject X.

(a) A Classical Villa situated in wooded country for a bachelor who has a small but valuable collection of antique sculpture. ½-inch scale and ¼-inch drawings to show both the villa and the gardens.

(b) A Pier at a First-class Watering Place. Drawings required: ¼-inch scale drawings of the general scheme, with a ½-inch scale detail showing the construction of the pier and of any pavilion which may be on it. *Subject XI.*

(a) A Monumental Tower with a large clock to be built to commemorate the adoption of the meridian of Greenwich throughout the world. Scale of drawings to suit the size of the scheme, but to include one detail drawing.

(b) A Country Club for 300 members in a large provincial town on a corner site, 75 feet wide by 150 feet deep, bounded by two main roads. The building can only extend back half the depth of the site, the remainder of which is to be treated as a formal garden. Drawings required: ½-inch scale and ¼-inch.

Subject XII.

(a) A Lighthouse on an isolated rock 100 yards from the entrance to a naval harbour. Scale of drawings to suit the size of the scheme, but to include one detail drawing.

(b) A Golf Club House: To contain:—
Entrance hall, porter's box and telephone.
Small room for secretary and committee meetings. Clubrooms.
Verandah or balcony, facing links.
Dressing rooms to contain 350 lockers.
Lavatories, baths, shower baths, w.c.'s, and urinals.
Dining room and servery.
Kitchen scullery, larders, pantry, stores, wine, beer, mineral waters, coals, knives, and boots.
Heating chamber and drying room.
Billiard room (2 tables) (card room optional), bar.
Servants' hall.
Stewards' quarters, sitting-room, 2 or 3 bedrooms, etc.
Caddies' room, with caddie-master's room adjoining; w.c., and urinals, and workshops.
Drawings required: 2 plans, 2 sections, and 3 elevations to ½-in. scale, also one ¼-in. detail.

Dates for Submission of Designs in 1913-14.

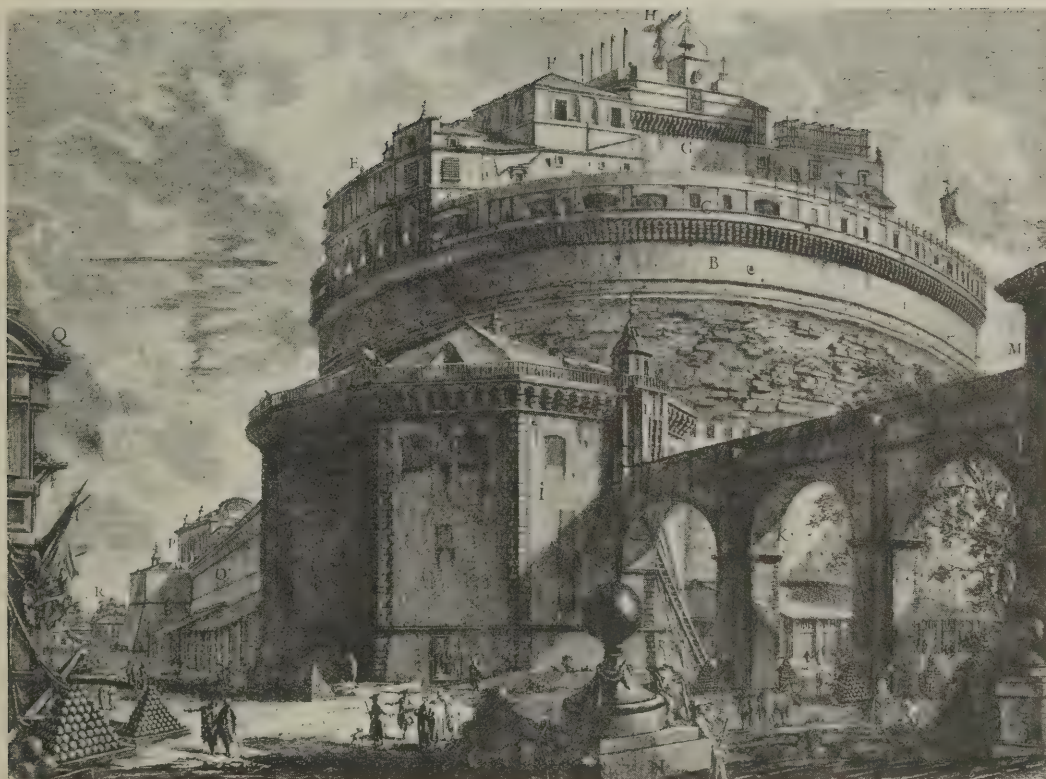
	Subject X.	Subject XI.	Subject XII.
United Kingdom	31 Aug.	31 Oct.	31 Dec.
Johannesburg	31 Oct.	31 Dec.	28 Feb.
Melbourne	30 Nov.	31 Jan.	31 Mar.
Sydney	30 Nov.	31 Jan.	31 Mar.
Toronto	30 Sept.	30 Nov.	31 Jan.

THE ARCHITECTS' & BUILDERS' JOURNAL.

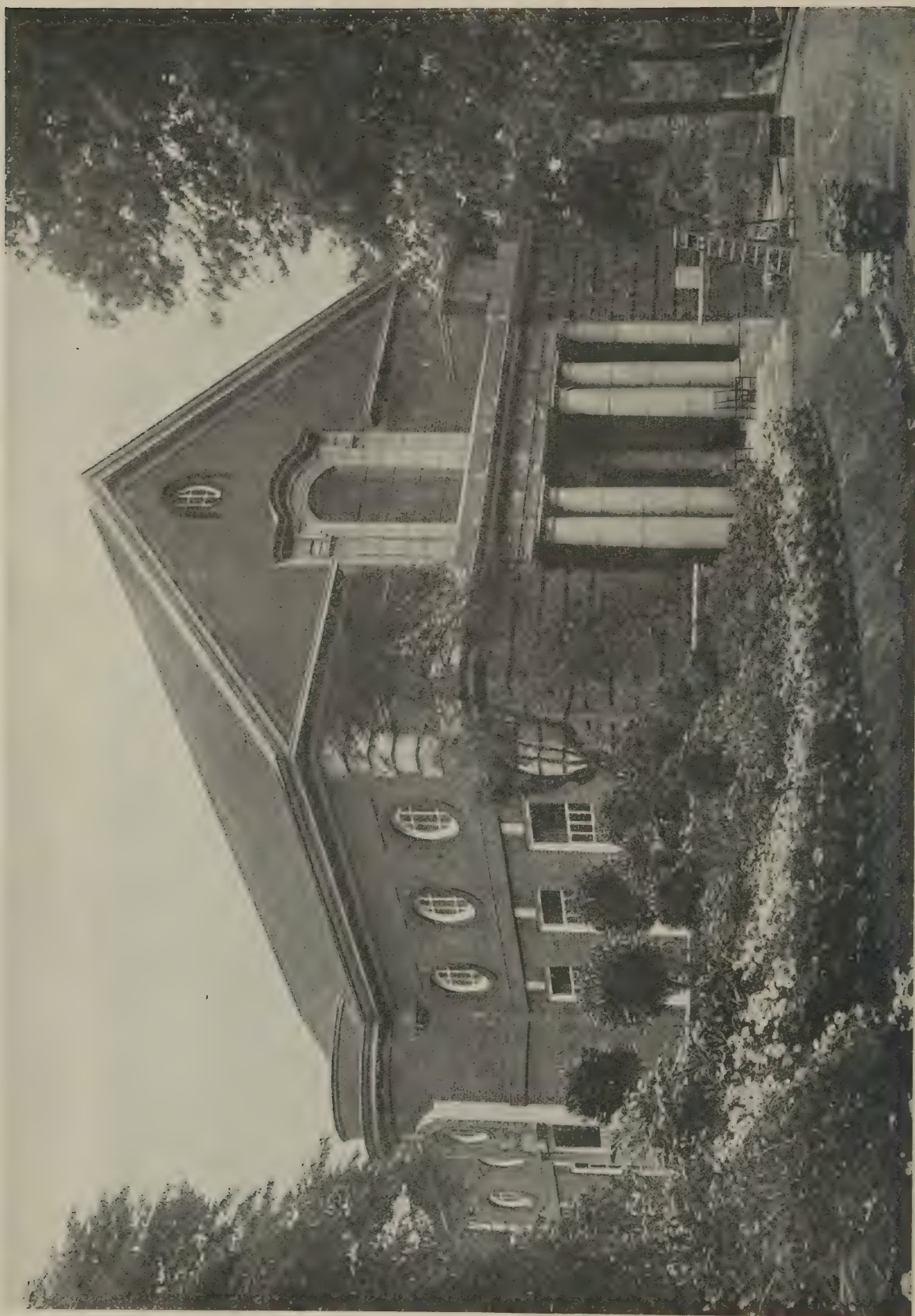
Wednesday, July 9, 1913.

Volume XXXVIII. No. 965.

No. 41.



(From Piranesi.)



THE LADY TATE LIBRARY, BEDFORD COLLEGE FOR WOMEN, REGENT'S PARK.
THE LATE S. R. J. SMITH, F.R.I.B.A., ARCHITECT. COMPLETED BY MR. A. ST. HILL BROCK, A.R.I.B.A.
(See pp. 42, 43; Plan, p. 48)

THE ARCHITECTS' & BUILDERS' JOURNAL.

JULY 9, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 38 No. 965.

The Peril of St. Paul's.

IT has always been put to Wren's credit that the area of the pier supports to the dome of St. Paul's is much less than in the case of St. Peter's, and that consequently his construction is the more daring. And perhaps no greater feat has ever been achieved by man than the building of St. Paul's dome; but Wren, through lack of knowledge of design, inadvertently left too small a margin of safety in his supports. For when he built his foundations he intended to put a dome of much less altitude, and consequently much less weight, upon them, than he has actually done. There is the evidence of the "warrant" design with its low dome to support this assumption; and even if the late Mr. Loftie's surmise is correct that Wren never intended to build it, there is a drawing in the library at St. Paul's in Wren's hand which shows a quarter plan of the dome at the level of the church floor, upon which a plan of a dome is superimposed. Now this upper plan consists of a single wall to support the drum instead of the two walls which now support the circular peristyle. This, again, means, whatever the outline of the dome, a lighter superstructure. It will never be determined at what date Wren hit upon the ingenious expedient he adopted, of building two domes with a cone in between them. At any rate, it was some time after the general form of the piers and bastions was settled, judging from the evidence of the plan noticed above. Had Wren been building upon a perfectly inflexible foundation, had he—even he, who distrusted mediæval methods so thoroughly—taken care to have his piers built of ashlar, his narrow margin of safety might have sufficed him. As it has chanced, the foundation is faulty, and the piers are thin shells of Portland stone filled in with rubble. The header stones, which were inserted to bind them together, have snapped with settlement, and so do nothing to give cohesion to them. Moreover, the mortar which Wren used has perished and the rubble filling has become disintegrated.

Wren assumed that the ground which had borne the previous building might reasonably be trusted again. He thought of a parity of weight, but the dome he built was heavier than the one he originally contemplated, and infinitely heavier than the Gothic spire.

The dome is supported on eight piers, each pair of which is backed by a massive bastion. These piers and bastions are all joined together by arches, the haunches of which, being filled up, offer a level table on which the drum of the dome rests. Wren so contrived it that the eight buttresses of the drum, each of which contains a little circular staircase, rest immediately over the eight piers. But the detached columns of the peristyle, with the wall behind them, rest upon the extrados of arches, the crowns of which are only some 3 ft. thick. To prevent any movement of these arches long iron ties were laid over them, and this system of binding by means of iron ties was used to an extraordinary extent, and it is to their use that a great part of the strength of the cathedral is due. For

although the ironwork, where it is built near to the surface of the stone, where it is exposed to the external atmosphere, has corroded and in some cases destroyed the stone, it is, as a rule, so completely hidden away that its presence is not even suspected. A few years ago a great chain at the springing of the dome was uncovered by Mr. Somers Clarke, and was reported to be as fresh as when it was put in, and it is safe to assume that the hidden ironwork elsewhere is in the same condition.

The weight of the dome, down to the level of the top of the piers, is 32,000 tons, which exercises a pressure of eleven tons to the foot over their area. Even if the piers were built of solid Portland stone they would be burdened to their limit. But when it is considered that they are merely cased with Portland stone, and that the core is rubble, the anxiety of those responsible for the safety of the cathedral can be easily understood.

As a matter of fact, these piers caused trouble immediately the building was finished, for in 1709 Edward Strong repaired flaws in them occasioned by the pressure. Some stones were cut out, others merely repaired with lead and plaster. But as the new stone was computed at 6 in. thick, the repairs, although extensive in their area, were merely superficial.

This early settlement was of course due to the building finding its bearing, and from that time for one hundred years little movement was observed, until the altered condition of the subsoil in the nineteenth century caused fresh settlement. This would be less serious were the masonry of the cathedral solid, but it has been shown by recent investigation to be far otherwise. And there can be no doubt that had it not been for the elaborate system of iron ties, with which Wren literally laced the building, the settlements would have been more serious.

But the building is not at rest, as the continual breaking of cement tell-tales proves. However slight in itself this movement may be, it cannot be regarded with equanimity, for the whole building is so delicately poised that the slightest alteration of the *status quo* might cause disastrous results. The dome, for example, now leans over a few inches toward the south-west, a divergence from truth hardly worth consideration, were it not from the fact that this deviation has increased in the last ten years, and that it brings increased pressure to bear on the already overweighted piers. As a matter of fact, the piers of the south-west quarter of the dome are those which have shown the most ominous signs, as they were the piers which sank most at the time of building. In this way the two dangers which assail the cathedral act or react upon one another. The subsoil under these piers offered less resistance to the weight laid upon it than it did elsewhere, and consequently allowed these piers to settle a few inches deeper than the rest, thus giving a tilt to the dome, and, what was worse, a tendency to tilt still further in the same direction. The series of iron girdles which Wren inserted in the drum and the dome, the cone and the lantern, have prevented any

fracture of the higher levels, beyond the dropping of the inner wall of the drum and the consequent cracking of the withes between the peristyle of the wall behind and the small buttresses which surround the base of the dome. The defects in the masonry can be remedied by the injection of liquid cement grout under pressure into the piers and walls, which will then become monolithic. And thus one great danger will be eliminated.

There remains the danger to be apprehended from excavation in the neighbourhood of the cathedral. The cathedral stands on a thin bed of potter's clay, under which lies some 25 ft. of sand and gravel in strata of various thickness. Excavations carried out at various times have proved the existence of running sand and even quicksand, which, so long as it can be retained, may be safe, but which is liable to run immediately any opening is made in it. It has been continually tapped. The disturbance, in proportion to the distance from the building, quickly or slowly communicates with the sand under it, drawing away the support for the bed of potter's clay, and so allows the huge bulk of the building to settle.

So the danger of the ever-altering nature of the subsoil remains, and until this is strengthened and put beyond the power of change movement is liable to continue. In the meantime a definite area around St. Paul's should be made immune from excavation.

J. M. W. HALLEY.

Bedford College and the Amenities of Regent's Park.

LORD EVERSLEY has seized the occasion of the ceremonial opening of Bedford College for Women, in Regent's Park, to draw fresh attention to the controversy which arose when it became known that this site had been chosen for the college. It is contended that in 1883 the Government committed themselves to a promise that as, by effluxion of time, the leases of certain villas lapsed to the Crown, the land about them should be added to the Park, or that, at least, before other use of the land was made, Parliament should have an opportunity of discussing its fate. With regard to South Villa, upon whose grounds the new college has been built, this promise has been broken, and Lord Eversley is anxious to avert further encroachments. Without inquiring too closely what exactly he means when he refers to "these most objectionable buildings," we cannot withhold agreement from his general proposition. There should be no further encroachments on the park. "It appears that in 1809 the architects of the Crown Revenue Department advised that the whole of what was Marylebone Park, consisting of 540 acres, formerly a Royal chase, not then open to the public, should be let on leases for building. But a wiser policy prevailed at the instance of the eminent architect, Mr. Nash, and 250 acres were thrown open to the public as Regent's Park, and the residue of the park, in connection with a great street improvement, resulting in Regent Street, was devoted to building." While looking with a tolerant eye on buildings devoted to education, and especially upon buildings that house an institution having so fine a record as that which Bedford College can show, we cannot help thinking that Lord Eversley is in the right of it. As to the buildings, although we illustrate them, it does not follow that we admire them. The Queen opened them; an eminent architect designed them; they represent the most important addition that has been made these many years to collegiate architecture in London; we believe that they are admirably planned, certainly they are not without merit, and therefore we give a few views of them; but neither the design nor the material impresses us as fully justifying the encroachment of which Lord Eversley complains. We should have preferred something more reminiscent of the spirit of Nash, and of the classicality which it is one of the functions of the college to foster.

The London Plasterers' Strike and Its Portents.

SEVEN of the most valuable weeks in the year having been spent to waste by the London plasterers, their strike has at length come to an end. It ought not to have occurred, and would have been averted if the men, in making their demand for increased wages and other concessions, had not coupled it with certain conditions of a gratuitously irritating character. It was always quite clear that, having met in a generous spirit the claims of certain other branches of the building industry, the employers were prepared to extend similar treatment to the plasterers, who, however, reviving a bad old tradition of theirs—the pugnacity of plasterers' unions has long been notorious—seemed to be spoiling for a fight; for their attitude at the outset was distinctly provocative. They flung their hats into the ring, and have only themselves to blame that the challenge was accepted and a costly strike ensued. In the circumstances, it is gratifying to find that the quarrel has not been more bitter and protracted. It has, indeed, been marked on both sides by a different tone from that which usually accompanies such struggles; a sort of subacid irony having superseded the old-fashioned style of mutual recrimination. Thus, when one side—it is no matter which—put forward, in the newspapers, an *ex-parte* statement of the case, the other side replied that the authors of it had overlooked the possibility of its prejudicing the public mind. That was a very neat *riposte*, and was much more deadly than columns of clumsy invective; but the new manner requires more skill of fence than is usually available. This strike, and the many others which are occurring in the provinces, have shattered the illusion that, so far as the building trade was concerned, industrial warfare was at an end. Carefully elaborated as the system of Conciliation Boards is, and successful as the system has been during the long cycle of lean years, when there was no incentive to strike, it appears, under a real test, to have fallen like a house of cards. Plainly, the workmen have lost faith in it, and consequently the system will have to be either carefully overhauled or allowed to lapse. Another point which arises prominently out of the present position is that building is becoming much more costly. It is not only that the builder's wages bill has become much heavier, and that on account of the Workmen's Compensation Act and the Insurance Act his expenses have been enormously increased; these items redouble upon him from outside, and he has to pay more for his purchases. In order to live he must charge more upon his contracts. This is a fact that he has been reluctant to recognise, but the necessity seems to have become at length plainly apparent, since we hear of a firm of provincial builders who have felt justified, upon the grounds above stated, in increasing their tender for a corporation contract by some fifteen hundred pounds, and the corporation are therefore arranging a fresh competition. If contractors are to prosper they must emulate the courage and consistency of this particular firm, who may be considered to be pioneers in a movement that is inevitable and must ultimately become general.

SUBURBAN HOUSE COMPETITION.

IN our issue for June 11th we published the conditions of a new competition for elevations of a small suburban house, to be based on the plans placed first in our former competition. The prizes offered are £5 5s., £3 3s., and £2 2s., and the drawings required are: Front elevation of a pair of houses and back and side elevations of the right-hand house. To each drawing must be affixed the coupon which will be found on page xxii. of this issue. The drawings, which must be sent in not later than July 11th, are to be to the scale of $\frac{1}{4}$ in. to the foot, finished in plain black and white or washed over and shaded in monochrome.

CHARLES ROBERT COCKERELL, R.A.

COCKERELL'S rapidly growing posthumous fame—he has been dead exactly half a century—will ultimately transcend, at all events in its mere extent, the reputation which he enjoyed among his contemporaries. The present vogue of Neo-Classicism having awakened fresh interest in his life and work, a short account of his career and achievements will be opportune. It shall be based on the authentic information contributed some time ago to the "Architectural Review" by his grandson, Mr. Robert Pepys Cockerell.

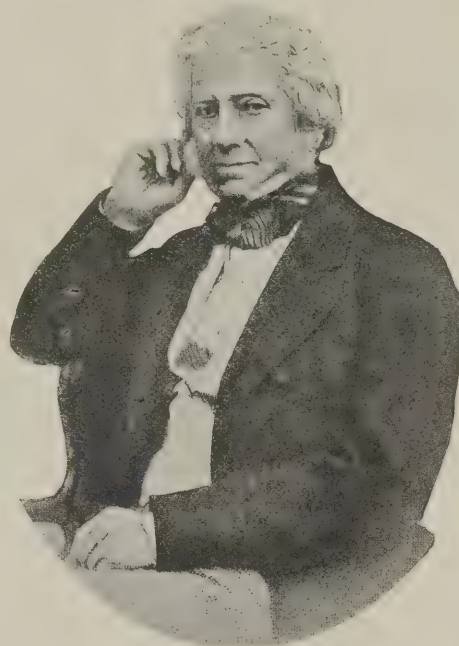
Charles Robert Cockerell was born on April 28th, 1788, second son of Samuel Pepys Cockerell, an architect of repute in his day, and surveyor to the East India House. Charles Robert's schooling ended rather sooner than is customary with the youths of to-day who are destined for professional careers; for, having been sent first to a private school in the City Road, he was entered at Westminster School in 1802, and left it, at the age of sixteen, to begin work in his father's office. His father sent him on an architectural tour in the West of England, and, this ended, young Cockerell became for a short time—from 1809 till the spring of 1810, confidential assistant to Robert Smirke in the rebuilding of Covent Garden Theatre. His father then decided to send him abroad in order to extend his opportunities for architectural study. In less turbulent times he would doubtless have followed the usual course of "making the Grand Tour"; but Napoleon had at that time closed the greater part of Europe to Englishmen, and by force of circumstance Charles was compelled to concentrate himself on Greece. On April 19th he set out from Plymouth on board an old ten-gun despatch boat, oddly named the "Black Joke," and did not reach Constantinople until the end of May. But the voyage, though slow, was not unadventurous; for the waters being alive with hostile craft the despatch boat was constantly on the alert for capturing or being captured, and, when only three days out, actually retook an English merchant brig which was in tow of a French privateer.

At Constantinople, Cockerell made friends with Canning (who afterwards became Lord Stratford de Redclyffe, and, for his commanding influence in diplomacy, was known as "the Great Eltchi"), with Lord Byron, with Hobhouse, and in particular with a young Liverpool architect named Foster. In September he sailed with Foster to Greece. At Athens he met Herr Linckh and Barons Haller and Stackelberg, and with these (except Stackelberg) and Foster as companions, he went to Ægina to visit the temple of Jupiter Panhellenius. Here, while digging round the ruins, the party found a piece of Parian marble, which turned out to be the helmeted head of a warrior. Tremendously excited, the diggers set to work with feverish energy, and ultimately found under the fallen portions of the tympanum and the cornice of the eastern and western pediments no fewer than sixteen statues and thirteen fragments, not three feet below the surface, and yet all in the highest state of preservation. The explorers paid £40 for the privilege of carrying off these treasures, which, to the great chagrin of Cockerell and Foster, who had hoped to secure them for England, were bought at auction by an agent of the King of Bavaria, and are now preserved in the Munich Glyptothek.

At Bassæ the party spent about ten days exploring, measuring, and sketching the Temple of Apollo, but were stopped by the proprietor. They then went touring in the Morea, and were glad enough to get back to Athens. "For three weeks," Cockerell writes in his diary, "I had slept with my clothes on, without a bed, and with only one blanket in which to wrap myself." And all this for art's sake.

After spending some time in Candia and Smyrna, Cockerell went to Malta, Segeste, and Girgenti. At Girgenti he stayed for two months, attempting to reconstruct the great Temple of Jupiter Olympius, and his results were published as an appendix to Stuart and Revett's "Athens." His theory was that the colossal figures of which so many fragments remained were Atlantes supporting the clerestory of the cella. At Syracuse he spent three months, working up the drawings he had brought with him, which were afterwards (but not until 1861) used in his fine folio on the Temples of Ægina and Phigaleia.

In the summer of 1812, the companions already mentioned, with two others, had obtained permission to dig at Bassæ, and had excavated and removed the whole splendid series of Phigaleian marbles; and although Cockerell had taken no part in this second expedition,



CHARLES ROBERT COCKERELL, R.A.

he was considered entitled, as first discoverer, to a share in the proceeds. In May, 1814, the marbles were bought by the British Government for 60,000 dollars.

By 1814 Italy was open to Englishmen, and Cockerell decided to go there. Before he left he received from the old Turkish commandant of the castle on the Acropolis a curious present. He was told to go at night with a cart to the base of the Acropolis. On his arrival there he heard some great mass come crashing down the slope, and found it to be the right-hand slab of the south frieze of the Parthenon. He presented it to the British Museum, where it may be seen to bear the marks of its odd adventure.

In Rome, with Linckh, in 1815, he found that his fame as an explorer had preceded him, and he was rather lionised by the foreign artists—including Ingres, Thorwaldsen, and Canova—who had rushed to Rome as soon as its gates were reopened to them. "I have daily a levée of savants, artists, and amateurs come to see my drawings; envoys and ambassadors beg to know when it will be convenient for me to show them some sketches; Prince Poniatowski and the Prince of Saxe-Gotha beg to be permitted to see them. In truth, publishers and readers are so reduced to re-publish and re-read the Roman antiquities which have been given a thousand times, that the avidity for novelty is beyond measure, and Greece is the fashion here as everywhere else."

For quiet, he fled to Florence, where he got even increased kudos for his work on the Niobe group in the Uffizi. His arrangement of the statues in pediment form is now universally accepted. His fame brought him an important commission. He was asked to prepare competition designs for a palace for the Duke of Wellington. He made some pretty sketches, but felt that he had failed. He even urged his father to consent to his giving up architecture for graphic art. His father refused. Young Cockerell then went all over North Italy sketching. Returning to Rome, he there completed his famous drawing of the Forum;

and after a short stay in Paris he arrived in London, after seven years' absence—an apprenticeship which proves that "his immense knowledge of Classic and especially Greek art was no mere book acquaintance. He drew his inspiration from the fountain-head, and so steeped himself in the very essence of Classic beauty that he may be said to have become in spirit a Greek of the great period. Hence it was that, when he applied his knowledge practically there resulted not mere clever copying, but original work conceived in the Classic spirit. His knowledge was a weapon with which he attacked his problems boldly, not a crutch to



FITZWILLIAM MUSEUM, CAMBRIDGE.

C. R. COCKERELL, R.A., ARCHITECT.



HANOVER CHAPEL, REGENT STREET, LONDON (NOW DEMOLISHED).

C. R. COCKERELL, R.A., ARCHITECT.

support a halting imitation; it stimulated instead of cramping his invention."

When he began really to practise architecture he was twenty-nine years old. Among his earliest works were the Bristol Literary and Philosophical Institute and the Hanover Chapel in Regent Street. The latter no longer exists, which, as the accompanying illustration will show, is a great pity, for it was a work of beauty and originality. He must have been greatly disappointed about the failure of funds for the completion of the Scottish National Monument on Calton Hill, in which he assisted Playfair, and of which only a small portion was built.

In 1832 Cockerell was commissioned to build the Westminster Insurance Office in the Strand, and in the same year he was appointed architect to the Bank of

England, for which he built the existing Drawing Office. In 1834, Cockerell's designs for the Cambridge University Library were chosen, but the work has never been completed. For the London and Westminster Bank in Lothbury Cockerell and Tite co-operated: the exterior is chiefly Cockerell's, the interior chiefly Tite's. His grandson, speaking of this building, states that Cockerell always studied very carefully the masonry of his façades, and generally preferred large stones, making their arrangement play a subtle part in his designs—*e.g.*, the Bank of England façade in Castle Street.

In 1863 the Royal Exchange was destroyed by fire, and Cockerell's design for a new building was tentatively chosen. There was, characteristically of the times, the customary squabble, and a fresh competition



BANK OF ENGLAND BRANCH, LIVERPOOL.

C. R. COCKERELL, R.A., ARCHITECT.

was arranged. Only Tite competed against Cockerell, whom the other architects considered to have been unfairly treated. Cockerell sent in a model, to which Tite objected, and, the objection being upheld, Cockerell was disqualified and Tite's design was accepted.

The finest of all Cockerell's works is in general estimation the Taylor and Randolph building at Oxford. It is an E-shaped block, two great wings being united by a long gallery, in the middle of which is a beautiful Ionic portico. An Ionic Order, of which each member is crowned with a statue, also adorns the wings, which comprise a basement and two storeys surmounted by a main cornice, above which are an attic and a subsidiary cornice. The late Mr. Brydon spoke of this building as "a veritable architectural gem, in every way worthy of the great university town. It bespeaks the artist and the scholar in every line, and proclaims him a consummate master of his craft. . . . We feel all the grace of its Greek refinement, both in proportion and in detail, the appropriateness of its sculpture and carving, the judicious contrast of plain surface and richness of effect, with all the wealth of knowledge and skill, and yet that reticence of design which goes to make an architectural work of the highest merit. Again, as in his commercial offices, this Taylor building is no mere copy of Greek features doing duty for lack of originality, but, on the contrary, it demonstrates once more the adaptability of the style to modern requirements."

Cockerell's Sun Insurance Office in Threadneedle Street is not as he left it. An extra storey has been added, not as an attic, but below the order, with displeasing effect. Of the Liverpool and London and Globe building in Dale Street, Liverpool, it has been said that there was not a bad line in it. This building also has suffered from alteration. The Bank of England branch building at Liverpool is by some considered to be the most beautiful of Cockerell's works. Certainly it is dignified, reticent, and strong, depending on its proportion rather than on its detail. The earlier Westminster Insurance Office was a conception of similar character.

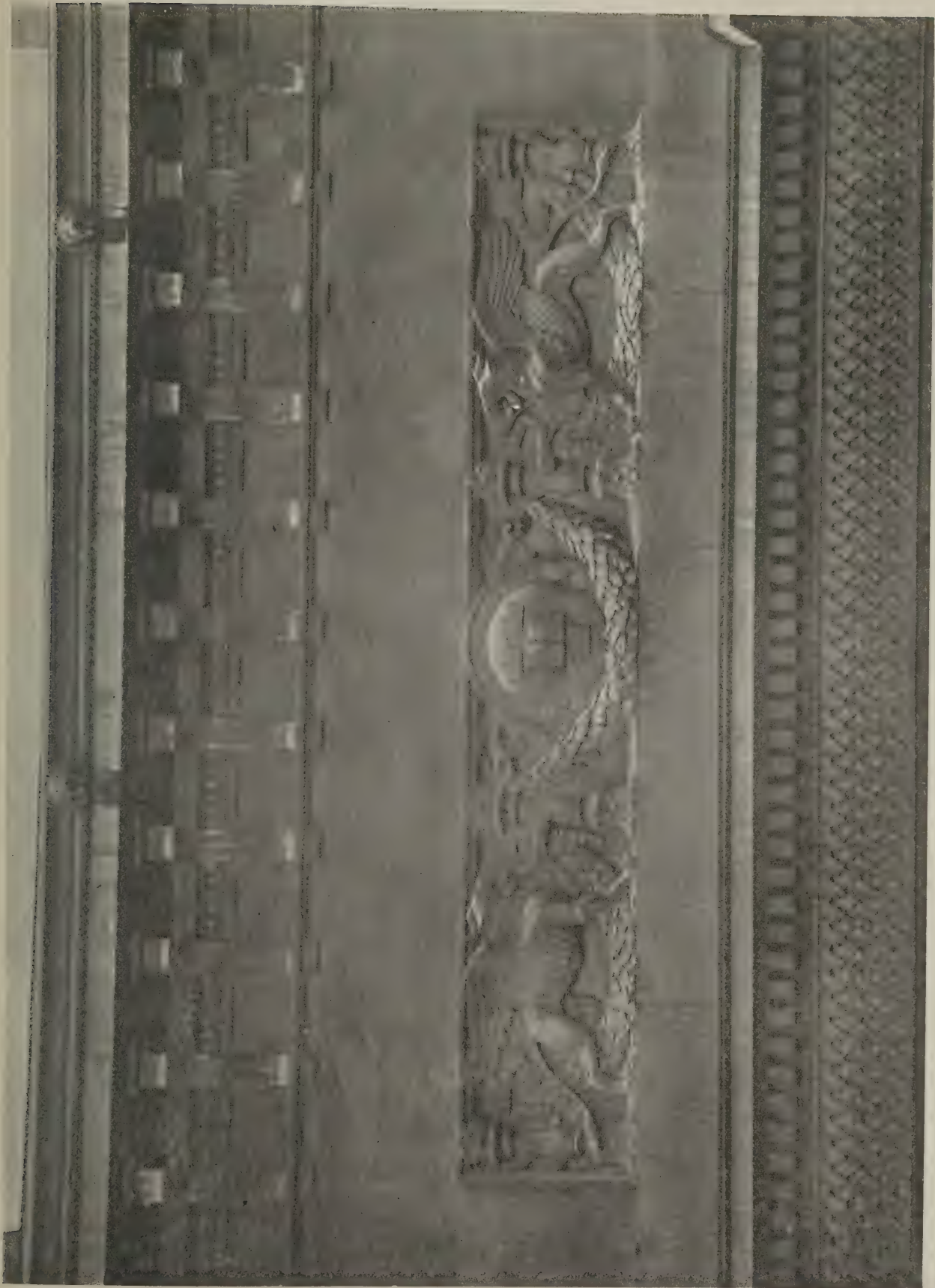
Basevi left incomplete the Fitzwilliam Museum at Cambridge; Cockerell, in 1846-7, finished it; and Mr. E. M. Barry subsequently altered it. In 1849, Elmes

died, and Cockerell, who loved him, and owed much to his influence and advice, was delighted to be asked to finish St. George's Hall, Liverpool. Mr. Robert Pepys Cockerell, referring to the controversy as to the respective shares of the two men in this work, expresses his belief that Elmes left the exterior nearly completed, planned the general arrangement of the building and the main internal structure of the great hall, and completed the northern entrance portico: the rest being Cockerell's. For the sculpture of the south pediment ("which I am bold enough to call the greatest post-Classical composition of architectural sculpture that we know"), he shows that the original design was Cockerell's, although the modifications by Alfred Stevens gave it greater boldness and beauty. "It cannot often happen that a great genius such as Elmes should find so entirely worthy a successor as Cockerell; and the united power of these two men has produced what is now, I believe, universally admitted to be one of the noblest buildings in the world." Cockerell was engaged on this work from 1851 till 1854, and in 1859 he retired from practice. Honours in plenty had been showered upon him, but they did not spoil him. In 1829 he was elected A.R.A.; in 1836 R.A.; in 1840 Professor of Architecture, a position he held for seventeen years, his lecture-room always crowded. He became Surveyor to St. Paul's, as well as to the East India House, in 1819, architect to the Bank of England in 1833. He was Chevalier of the Legion of Honour, Foreign Associate of the Beaux-Arts, Member of the Roman Academy of St. Luke, of the Royal Academies of Bavaria, Belgium, and Denmark, of the Academies of Geneva and Genoa, and of the American Institute of Architects. In 1848 he was chosen as the first Royal Gold Medallist of the R.I.B.A., and was the first professional president of the Institute. In 1863 he died, and was buried in St. Paul's beside Sir Christopher Wren. His grandson said that he was loved as few are loved, both by his own folk and his friends; and Professor George Aitchison has written that: "In the roll of British architects few have brought so many titles to admiration—ripe scholarship, exquisite delineation, masterly composition, uprightness, integrity, genius, and enthusiasm; and withal the dignified and refined manners of the high-bred English gentleman."



TAYLOR AND RANDOLPH BUILDINGS, OXFORD. C. R. COCKERELL, R.A., ARCHITECT.

LIBRARY 33
OF THE
UNIVERSITY OF ILLINOIS
29 JUL 1913



DETAIL OF WALL TREATMENT WITH CARVED PANEL, TAYLORIAN INSTITUTION, OXFORD. C. R. COCKERELL, ARCHITECT.

CORRESPONDENCE.

The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.

Correspondents are asked to be brief, and to write on one side only of the paper

A Relic of Wren at Lee.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—A fairly characteristic fragment of Wren's work is the tiny square chapel in the High Road, Lee. It is known as the Chapel of Boone's Almshouses, and there are certainly almshouses at the back of it, with a large greensward intervening. These, however, are the Merchant Taylors' Company's Almshouses, of which the first stone was laid in 1826. Boone's Almshouses, to which the chapel was attached, were built from Sir Christopher Wren's designs in 1683, and were demolished in 1876. The founder, Christopher Boone, a London merchant, and said to have been a descendant of the Bohuns, made in 1683 a deed, in which he "enfeoffed" the Master and Wardens of the Merchant Taylors' Company in a parcel of land, on which



CHAPEL OF BOONE'S ALMSHOUSES, LEE, KENT.

SIR CHRISTOPHER WREN, ARCHITECT.

they built the chapel and four almshouses, one as a residence for a schoolmistress and the others for occupation by "six poor ancient almspeople." The newer almshouses comprise thirty tenements. The old chapel is not now in use, but is simply preserved as a relic of Wren's work. It is not exactly as he left it. Formerly there was a finely carved stone angel over the entrance door, but it fell during a storm and was smashed to fragments, Wren's cupola and bell coming down in the same hurricane. The existing cupola looks inferior to anything Wren would have designed. The mellow red brickwork is mostly of Wren's time; but the north wall (beneath which several members of the Boone family were buried) bears obvious traces of comparatively recent restoration. The red-tiled roof, the pediments, the bulls'-eyes, and the beautiful sense of proportion, are all right Wren-like, and render this little gem of a chapel well worth preservation. It is not only delightful in itself, but invests its immediate surroundings with a delicate suggestion of old-world charm that is possibly not entirely lost upon the thousands of people who flash past it on the electric cars and motor 'buses, although not one in a thousand has even a passing thought for Boone, Wren, or the Merchant Taylors' Company, who have united in preserving the amenities of a considerable section of this still pleasant south-eastern suburb.

Lee, Kent.

J. F. R.

R.I.B.A. Final Model Answers.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—It would be very interesting to know upon what grounds Mr. Walgate assumes that the thrust of a retained wedge of earth acts in a direction parallel to the line of rupture. The very generally accepted theory of Rankine assumes a horizontal thrust such as would be given by a smooth wedge acting in a smooth vertical plane, and although this assumption is somewhat too severe with rough wall backs, especially when stepped in offsets, no authority, I believe, advocates anything more daring than Scheffler, who suggests that the thrust on the wall is that resultant of the horizontal thrust which would act parallel to the angle of repose. Mr. Walgate's design shows a concrete floor and main girders, which would probably render the wall shown quite safe, but as these are neglected in the design of the wall, one would like to be sure that the methods given are safe in cases where such adventitious aids are not available. All authorities, I think, agree that the thrust, whatever it is, acts at one-third the height of the wall. Mr. Walgate appears to neglect this. It would be interesting to know what is the coefficient of sliding of masonry or brickwork on asphalt. I recently had a case which would appear to show that sliding takes place somewhat readily along a sheet bitumen damp course.

INQUIRER.

TEMPLE BAR.

TEMPLE BAR, it seems, is still dear to the memory of Londoners. Public references to it are remarkably frequent, and are nearly always eulogistic. Sir John Benn is of those who regret the burial in the country of an ancient monument that had become, as it were, an organic feature of London; for he mentioned it as an instance of the callousness of the Corporation towards the ancient monuments committed to its care: the subject of the London County Council debate in which the reference was made being the proposal of the Council not to oppose certain Corporation amendments to the Ancient Monuments Consolidation and Amendment Bill, the City Corporation seeking to be the sole authority within its own territory with respect to the custody of ancient monuments. Sir John regretted that the City had parted with Crosby Hall and Temple Bar. He thought that Temple Bar might have been used with great advantage as one of the entrances to the Embankment. For such a situation, the old gateway put up by Wren in 1670 and removed in 1878 hardly possesses sufficient size and dignity. It had to be removed from where Wren placed it. There were two overwhelming reasons, either of which would have been amply sufficient, why it could not be retained on the site now marked by the hideous Griffin monument to its memory. One was, that it was unendurably obstructive to the traffic—a reason that should have prevented the erection of the Griffin, and may ultimately operate for the removal of that strange wildfowl; the other, that its style was an emphatic protest against Street's mediæval Palace of Justice, more popularly and more appropriately called the Law Courts. It ought, however, to have been kept in the City, not only because it was an interesting example of Wren's work (to say nothing of John Bushnell's statues of Elizabeth, James I. and Charles I. and II.), but because of its historical associations—such as the pomp and circumstance with which its gates were closed against the entry of royalty, a herald proclaiming the Sovereign's arrival, the Lord Mayor ordering the gates to be opened, and dutifully handing his sword to his Sovereign, who graciously returned it: a very pretty piece of rather puerile pageantry which this workaday world could nevertheless but ill-afford to lose.



NEW PREMISES FOR MESSRS. MAPLE AND CO., LTD., BUENOS AIRES.
C. MACPHERSON, ARCHITECT.

(See page 43.)



NEW PREMISES FOR MESSRS. MAPLE AND CO., LTD., BUENOS AIRES: THE ROTUNDA.

C. MACPHERSON, ARCHITECT.

(See page 43: Plan, p. 48.)



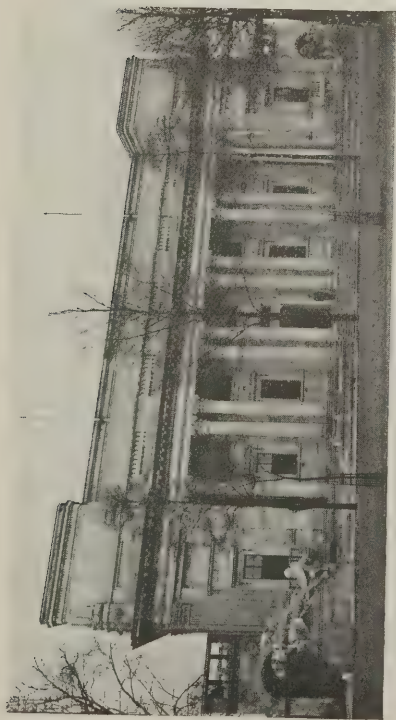
Garden Front from North-East.



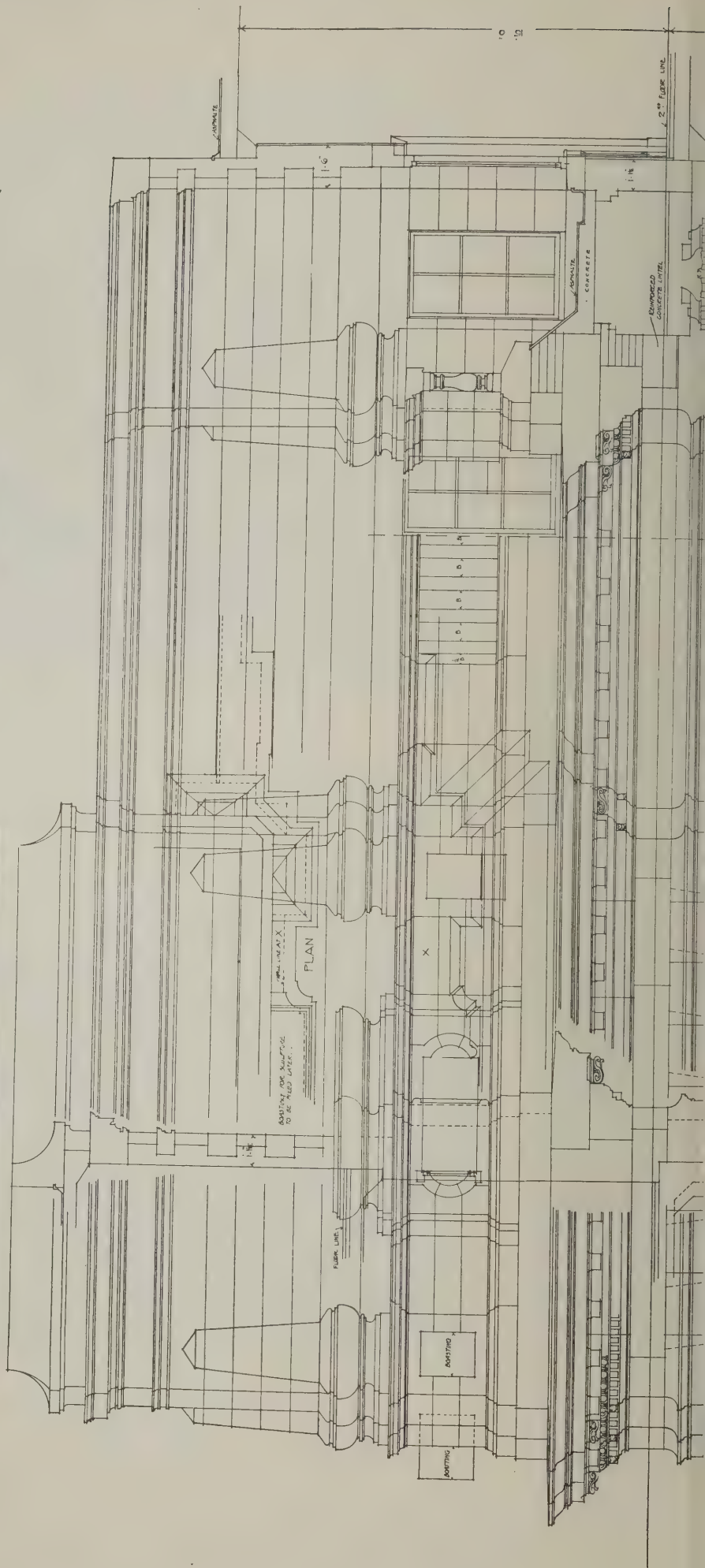
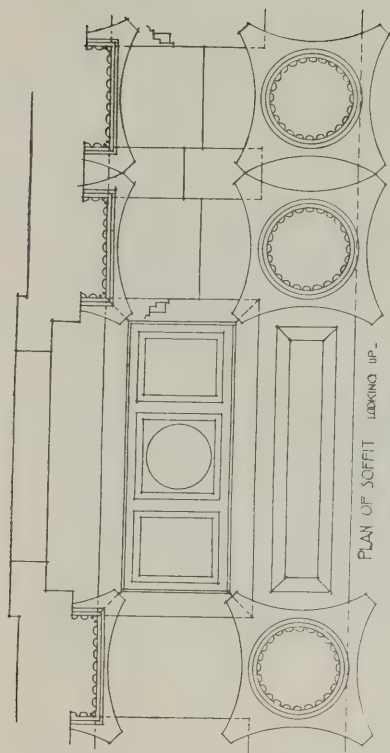
Entrance Front.

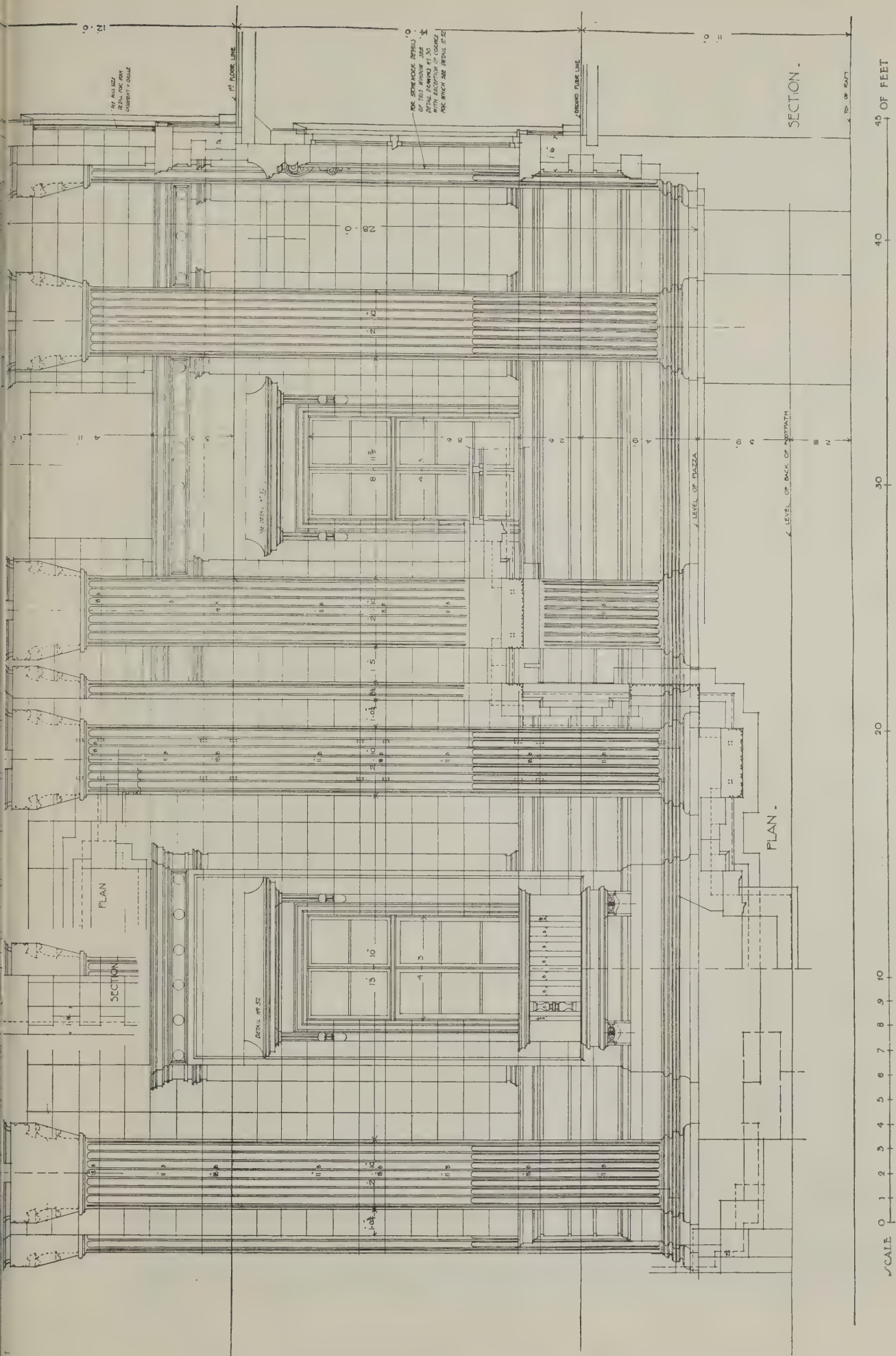
MODERN DOMESTIC ARCHITECTURE. HOUSES OF INTERMEDIATE SIZE.
NO. XV.: "YEWLANDS," HODDESDON, HERTS. GEOFFRY LUCAS, F.R.I.B.A., ARCHITECT.

(See page 43, and Plan, p. 50.)



15051.





WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS. XXXI.—GLAMORGAN COUNTY HALL, CARDIFF: DETAIL OF MAIN FRONT.

E. VINCENT HARRIS AND THOMAS A. MOODIE, A.A.R.I.B.A., ARCHITECTS.

(See page 43)

THE NEW BEDFORD COLLEGE.

THE new buildings of the Bedford College for Women, in Regent's Park, opened on Friday last by the Queen, have been erected from the designs of Mr. Basil Champneys, M.A. Standing in grounds of more than eight acres in extent, they are constructed of purple-coloured brick, with mouldings and dressings of red brick, the style being a version of Georgian. The six blocks which constitute the college form a semi-circle around the old mansion of the grounds, known as South Villa. The main entrance is on the Inner Circle Road, immediately opposite the Botanic Gardens. The residential wing provides accommodation for eighty students, each having her own study-bedroom. There are also 350 day students at the college. Fortunately there has been no neces-

sity to clear the site of any of its fine trees, by which the college is almost entirely surrounded. The contractor for the new buildings was Mr. T. Rowbotham, of Birmingham. The Lady Tate Library, which is illustrated on pp. 26 and 48, designed by the late Mr. S. R. J. Smith (completed under the direction of Mr. A. St. Hill Brock, A.R.I.B.A.), is described under "Our Plates," p. 43. During the course of Friday's ceremony Mr. Basil Champneys was presented to the Queen, who, with Queen Alexandra, is a joint patron of the College. It will be remembered that the proposal to build the new college on the site in Regent's Park was the subject of considerable controversy. Referring to this matter on Friday last, Lord Rosebery admitted the encroachment, but argued that in view of the great difficulty in obtaining sites for educational institutions the public should be prepared to make some sacrifice.

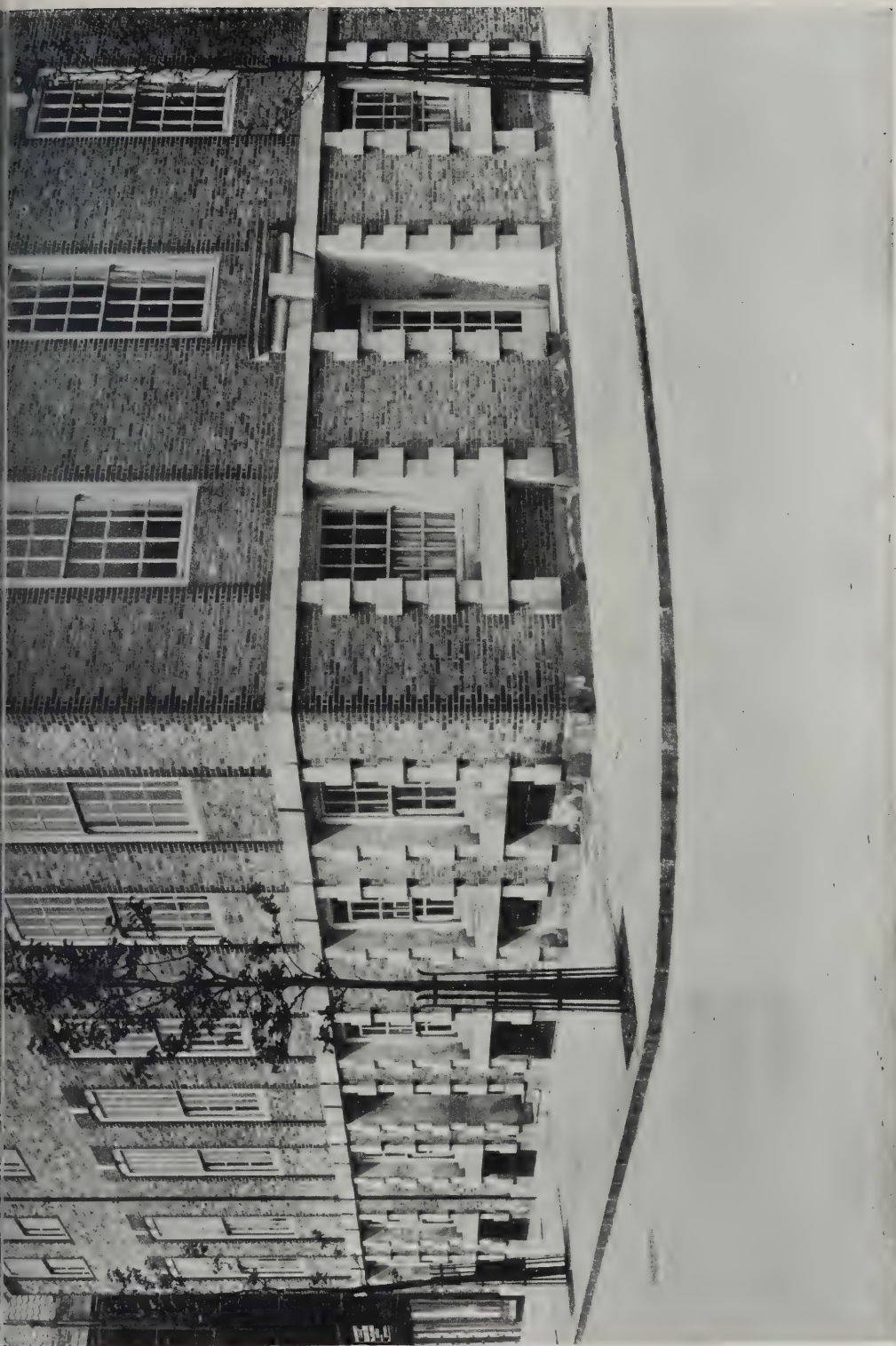


BEDFORD COLLEGE FOR WOMEN: MAIN ENTRANCE.
BASIL CHAMPNEYS, M.A., F.R.I.B.A., ARCHITECT.

Photo: Topical.

Supplement to THE ARCHITECTS' AND BUILDERS' JOURNAL, Wednesday, July 9th, 1913.





HOUSE IN SMITH SQUARE, WESTMINSTER. EDWIN L. LUTYENS, A.R.A., F.R.I.B.A., ARCHITECT.

OUR PLATES.

House in Smith Square, Westminster.

THE most notable, perhaps, of the new buildings in Smith Square, Westminster, is the house recently erected on the west side for the Right Hon. Reginald McKenna, M.P., from the designs of Mr. E. L. Lutyens, A.R.A., F.R.I.B.A.—the subject of the Centre Plate in the present issue. It is constructed of grey brick generally, with red bricks for the quoins, and dressings of Portland stone. Messrs. Holloway Bros. were the builders. A plan of the house is given on page 48.

The Lady Tate Library, Bedford College for Women.

The Lady Tate Library, designed originally by the late Mr. S. R. J. Smith, who died early in the present year, was completed under the direction of Mr. A. St. Hill Brock, A.R.I.B.A. It is built of red brick with Portland stone dressings, and the roof is covered with tiles similar to those used for the College. The bull's-eye windows and the end windows are all filled with stained glass, the latter containing representations of "Art" and "Literature." Internally the walls are panelled with English oak to half the height, and finished above in imitation stone. The ceiling is of the barrelled type, with plaster ribs. The floor is laid with oak wood blocks, the vestibule being paved with 1 ft. sq. marble tiles. Illumination is provided by a number of oxydised-silver electric light fittings. For elevation, see p. 26. For plan, p. 48.

New Premises for Messrs. Maple and Co., Buenos Aires.

These premises (of which interior and exterior illustrations are given on pages 35-37 respectively), are about to be erected in the "Calle Suipacha," one of the main streets of Buenos Aires. Owing to an entire absence of local building materials, everything necessary for the erection of the building has to be manufactured and shipped from England. The building, which will be eight stories

high, including a basement, is to be erected on the steel-frame principle, the contract for the steelwork having been placed with Messrs. Wood and Co., of Manchester. The floors, however, will be in reinforced concrete, of 20-ft. spans. The façade, of Portland stone, will be worked wholly at the quarries and shipped ready for placing in position. The shop fronts, window frames, and the central staircase, will be in cast bronze. There will be no general contractor, as the building is to be erected by Messrs. Maple and Co.'s own building department. Mr. C. Macpherson is the architect.

"Yewlands," Hoddesdon, Herts.

The materials of this house, which is illustrated on page 39, include unpicked red brick facings, cream-coloured rough-cast, and hand-made tiles. The porch is of half-timber, built very sturdily of English oak and brick nogging. It was out of deference to the wish of the client that so many different materials were used, but the architect, Mr. Geoffrey Lucas, F.R.I.B.A., has blended them all together with very harmonious effect. The builders were Messrs. J. Willmott and Sons, of Hitchin and Hornsey. For plan see p. 50.

Glamorgan County Hall, Cardiff.

The design for the new Glamorgan County Hall by Messrs. E. Vincent Harris and Thomas A. Moodie, A.A.R.I.B.A., was selected in competition some five years ago. On the main front variations occurred chiefly at the level of the blind attic storey, and their extent may be judged by a comparison of the original working drawing of part of the elevation with the small photograph showing the building as actually completed (see pages 40, 41). The principal façade, nearly 130 ft. in width, consists of fine bays of coupled Corinthian columns, flanked on either side by pavilions, adjoining which are gateways leading to the side entrances and the rear portion of the site. Axial with the pavilions are sculpture groups, by Mr. Albert Hodge, symbolical of Navigation and Mining.



BEDFORD COLLEGE FOR WOMEN: ENTRANCE TO RESIDENTIAL BUILDINGS.
BASIL CHAMPNEYS, M.A., F.R.I.B.A., ARCHITECT.

(See page 42).

Photo: Topical.

THE R.I.B.A. FINAL EXAMINATION: MODEL ANSWERS.

BY C. PERCIVAL WALGATE, A.R.C.A. Lond. (Architecture), A.R.I.B.A. Grissell Medallist, 1910, R.C.A. Travelling Scholar.

CONSTRUCTION. FIRST PAPER (Concluded).

Questions 1 and 2 were answered in the issue for July 2nd, p. 21.

3½ hours allowed.

3. A building covering a space thirty feet long by fifteen feet wide, and ten feet high internally, is to be inclosed by brick walls on one side and at both ends, the other side being left open.

The roof is to be of timber and slates, and to be supported by the walls alone. The roof is to project ten feet along the open side, thus giving a covered unobstructed area of thirty feet by twenty-five feet.

Draw to scale, two feet to an inch, a plan, and longitudinal and cross sections, showing the construction of the roof and the thickness of the supporting walls, also draw sketch details of the carpenters' work to a larger scale.

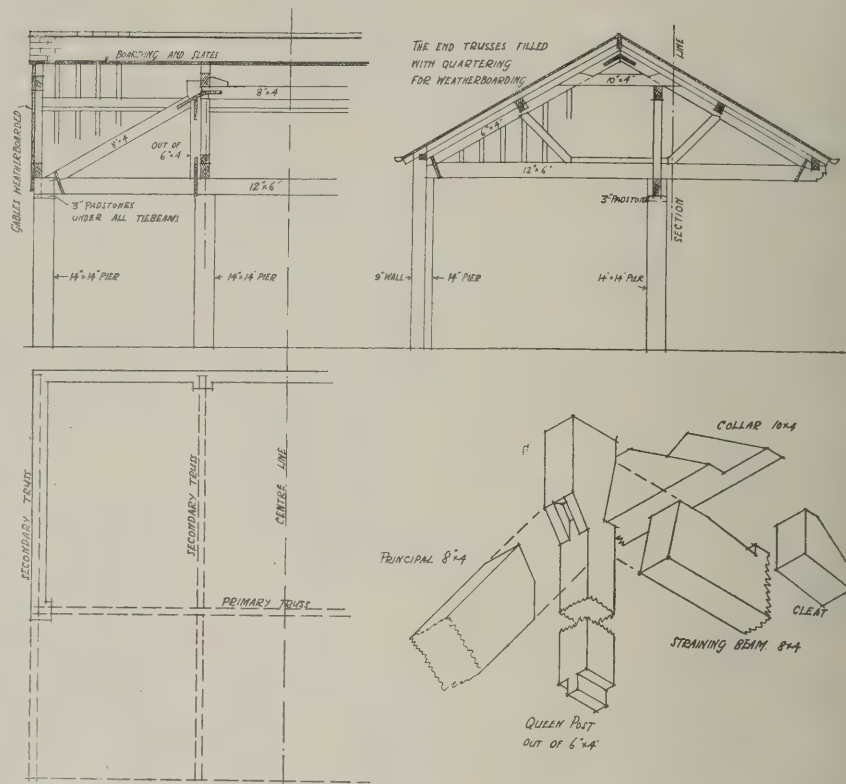
4. Draw to scale, two feet to an inch, the timber centering required for constructing a two-centred moulded stone arch in a nave arcade, with a span of seventeen feet in the clear to carry a wall eighteen inches in thickness. Also describe the arrangements necessary for striking the centering on completion.

Answer.—The drawing shows between the posts and the centering pairs of wedges, which are greased before driving. This allows them to be gently eased before striking, so that the arch may take its bearing without being strained by shock. In very large work jacks are used instead of wedges.

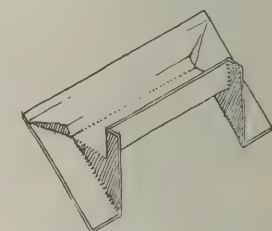
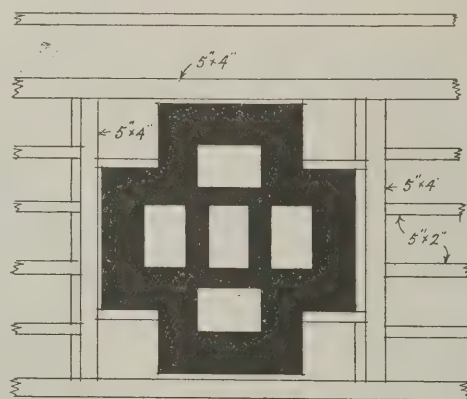
5. A brick chimney shaft consisting of three flues side by side and two others placed centrally against them, each fourteen inches by nine inches (sketch plan given) passes through a slated roof midway up the slope, with its longest side parallel to the ridge.

Draw to scale, two feet to an inch, a plan of the stack, showing the arrangement of the carpenters' work adjoining, and to scale, one and a-half inches to the foot, all the details of the plumbers' and slaters' work connected with this part of the building.

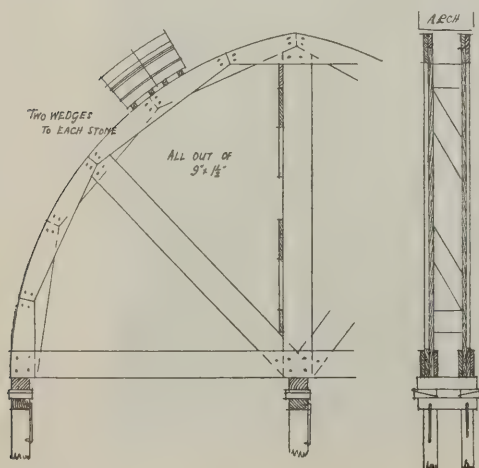
6. Sketch to scale, one and a-half inches to a foot, two sections of each of the following joinery details, constructed in oak for exclusion of weather:



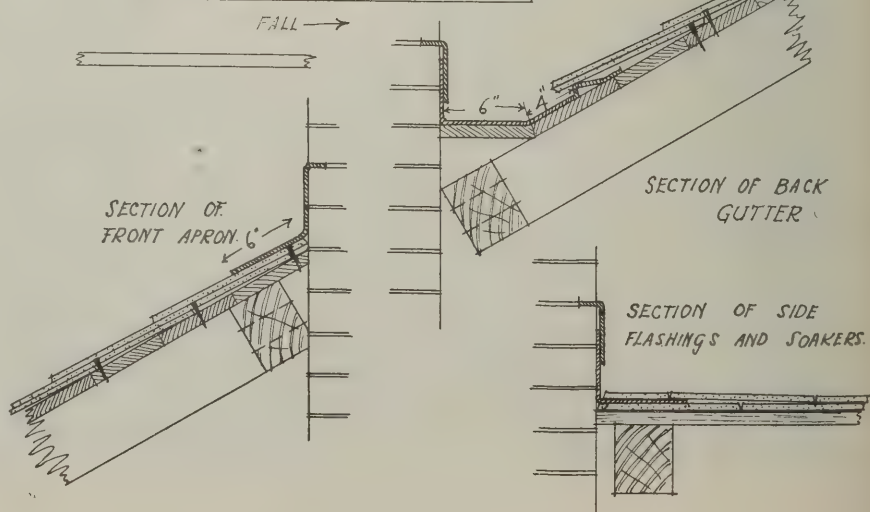
Question 3.



SKETCH OF BACK GUTTER.



Question 4.



Question 5.

(a) French casement and frame, the casement opening inwards.

(b) Window frame and casement opening outwards.

(c) A lifting skylight and frame in a flat roof.

Answer.—Note. The alternative section shown for fixing the glass of the skylight is for a large sheet in which expansion and contraction will loosen the putty. The groove receives any slight leakage which may occur.

THE CONDITION OF ST. PAUL'S CATHEDRAL.

Report by Sir Thomas Jackson.

One of the party of architects who, as recorded last week, paid a visit of inspection to St. Paul's Cathedral, was Sir Thomas G. Jackson, R.A., who has put down his opinion on the situation in the form of the following letter to Sir Francis Fox:

"Eagle House, Wimbledon,

June 19, 1913.

Dear Sir Francis Fox,—I send you my impressions from what you showed me yesterday at St. Paul's.

"I gathered that Sir Christopher Wren laid his foundations on a bed of firm clay some 6 ft. or 7 ft. thick, below which is a bed of good gravel of about the same thickness. Below that is a layer of sand charged with water.

"On such a foundation, undisturbed, I think one might safely put almost any building. Wet sand is remarkably firm so long as it is confined.

"In this case, however, deep sewers have been made close to the building—much deeper than Wren's foundations, which

are only 4 ft. 6 in. below the crypt floor, and one warehouse at all events has a basement also well below the foundations. Probably most, if not all, the buildings round the churchyard are similarly provided with deep basements, though I am not aware of the fact.

"These sewers and basements were formed in the sand stratum, and from reports made during the formation of the sewer it appears that it was constructed with great difficulty, as the wet sand flowed in and had to be pumped out. This operation lasted six months before the alarm was given which prevented the formation of an additional sewer.

"This draught of water and running sand from the subsoil has no doubt been the cause of the settlement of the eight piers of the dome on which the heaviest weight rests.

"Although the proposed tramway near the east end has fortunately been abandoned, I think it probable that a drainage is still going on below the foundations. It is recorded that the sewer was formed with great difficulty, the bricks disappearing in the great rush of water and sand into the excavation. I do not know what condition the sewer is in now, but even if it is still watertight there would naturally be a draught round it which would do mischief by drawing sand from below the foundations of the cathedral.

"Whether anything can be done to avert the progress of this loosening of the subsoil I cannot from what I know form any opinion. To underpin the piers of the dome is of course impracticable, for one would only get into the same bed of running sand. I do not know whether it would be possible to inject cement into the soil round about the deep sewer, to which I conceive the mischief is due.

"The fissures you showed me in the piers in the crypt, the nave, and the

radiating buttresses at the springing of the dome drum are alarming. A mere cursory inspection should be enough to convince anyone that the matter can no longer be neglected.

"What is now being done by you and Mr. Macartney is to consolidate the piers by injecting cement grout into all the cracks with the Greathead machine. I was surprised to see the very inferior character of the core of the piers in the crypt, which consists of loose rubble of small stones laid in very inferior mortar quite soft and unfit to carry weight. To consolidate this by grouting as you are doing is obviously the first thing to be done, and to judge from what I saw when a stone had been removed from a part of the wall which had been grouted the desired result seems to have been attained. The grout seems to have travelled into every fissure and to have set like a rock.

"Underpinning being out of the question, my opinion is that the only hope is to bind the construction so firmly together as to make it a homogeneous fabric which, if it settles further, may go down without rupture.

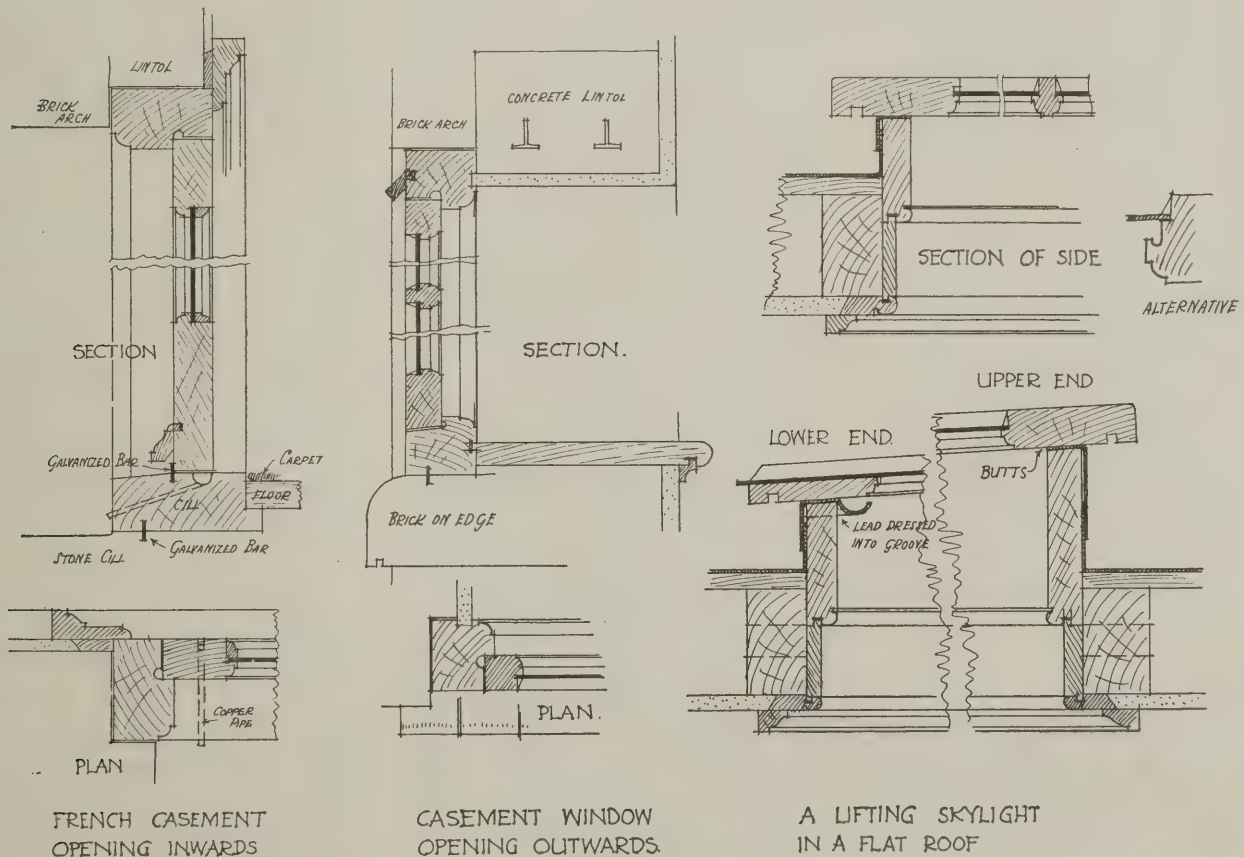
"This, of course, involves considerations of the unequal load on the central parts of the building and the ends of the arms of the Cross, which no doubt creates a difficulty, but I trust not an insuperable one.

"The capital work you are now doing meets the first obvious necessity, but I wish something could be done to avert further movement in the subsoil if on examination it should be found still active.

Yours very truly,

THOMAS G. JACKSON."

"P.S.—The vibration from the street traffic is felt very sensibly in the library. I cannot feel certain as to the possibility of its affecting the stability of the build-



Question 6.

ing, but if it has any effect at all on the mortar joints that effect must be for the worse.

"T. G. J."

This report, grave enough to have offered an excellent opportunity to the scaremongering of those lay newspapers which subsist on sensation, should have the immediate effect of procuring funds for the complete rehabilitation of the cathedral. For the moment, however, the subscribing public are fully occupied with the case of the Crystal Palace, a building that it is almost sacrilegious to mention in the same breath.

Views of Mr. Somers Clarke.

On Sir Thomas Jackson's report, Mr. Somers Clarke, formerly architect to the Dean and Chapter, makes the following observations:

"Since I resigned the position of architect to the Dean and Chapter in 1907, I have from time to time visited the building, and more especially in June of this year. I am convinced that there have been movements in the walls of the structure since I had it in charge. The condition of the southern end of the south transept when I took charge was very alarming. It was just at the foot of this immense and heavy wall that the sewer was made many years ago from which volumes of sand and water were pumped. I fear that unless all along the south side some means be found to carry the footings right down to the London clay, the cathedral will always stand in the greatest jeopardy."

"Sir T. G. Jackson calls attention to the dangers that lurk in the future. By the kind permission of Sir Francis Cook I have examined the basement of his large warehouse, which lies immediately south of the south transept. Fortunately his premises, entirely rebuilt not very many years since, do not go down as low as the footings of the cathedral, but immediately to the west lies a row of smaller buildings which might at any time be reconstructed. Space is so valuable at this point that the owners would find themselves benefited in all respects by carrying down the foundations of the new premises to the London clay. This would be far below the present footings. All lateral support would be lost."

"The south-west tower shows active signs of movement. Close to this part of the cathedral deep foundations for adjacent warehouses have been made. I have seen some of them myself, the water moving through the gravel which overlies the London clay."

"Sir T. G. Jackson refers to vibration felt in the library. The apartment lies immediately behind the south-west tower, and is consequently near the place where the deep foundations before referred to were excavated. Certain openings visible in the vaulted ceiling of this room are bigger than they were a few years since. I cannot remember of old to have felt the floor of this room in vibration, although I have spent many hours in the library. Now it vibrates considerably and constantly with the weight of passing vehicles."

Underground Cementing Experiments.

The Dean and Chapter of St. Paul's have decided to have experiments made in the process of underground cementing recommended by Sir Francis Fox. A suggestion of Canon Alexander that the site of the old Post Office—where the conditions (including the existence of a heavy building) are very similar to those in St. Paul's Churchyard—should be utilised for this purpose has been adopted.

SOME REASONS FOR REGISTRATION.

A circular giving "some reasons why, in the public interest, architects should be registered" and setting forth "the main object and effect of a Registration Act as advocated by the Society of Architects," has been issued on behalf of that body by its secretary, Mr. C. McArthur Butler, who states in the opening paragraph, that "the Society of Architects being of the opinion that it is desirable in the public interest that persons requiring professional aid in architecture should be enabled to distinguish qualified from unqualified practitioners, and that steps should be taken to prevent unqualified and incompetent persons from posing as architects, have to that end drafted a Bill for the registration of architects."

"Architects (the circular proceeds) have the spending in the aggregate of vast sums of public money and the control of matters affecting the life, health, convenience, and financial interests of a very large section of the community. The practice of architecture calls for the possession and exercise of many and varied gifts and attainments, chief among which are artistic sense and feeling, scientific and professional knowledge, practical skill, and business ability. . . ."

"The proposal for the registration of architects is not a new one. nor does it introduce any new principle. It is merely carrying to its logical conclusion of State registration the present voluntary system of registration of their members by the various architectural bodies. Registration is in force in several European countries, many of the American States, and a number of our own Dominions, while others are applying for it."

Main Objects of the Bill.

"The proposal is that at the time of the passing of the Act every bona-fide qualified architect shall be entitled to register and that the vested interests of engineers, surveyors, clerks of works, builders, or other persons who may be affected shall be protected, and opportunity afterwards given to all who wish to practise architecture, of qualifying for admittance to the register. Only those so registered are to be entitled to recover fees for services rendered as architects."

"The Bill would provide (inter alia) for the establishment of a registering body or council, comprised of members appointed by the Privy Council, the Royal Academy of Arts, and the Architectural Societies for the administration of the Act and the conduct of the examinations."

The Effect of a Registration Act.

"The first effect of an Architects' Registration Act would be to give an immediate and definite impulse to architectural education and training by setting up a compulsory standard of qualification. The chief weakness of the present voluntary system of architectural examinations is that they are not obligatory (except under certain conditions for admittance to membership of architectural bodies). At present such examinations are not in any case essential as a preliminary to the practice of architecture or to the claiming of the title of architect."

"The ultimate result of such an Act of Parliament would be that the unqualified practitioner would be gradually eliminated by effluxion of time without inflicting injustice or hardship on anyone and without creating a monopoly, while the public would have a guarantee that in employing any architect they would secure

the services of a person possessed of at least the minimum qualifications required for the proper performance of his very onerous duties."

Some Advantages to the Public.

"Among some of the advantages to the public which, in the opinion of the society, would be secured as a result of the passing of a Registration Act of the kind advocated, would be the raising of the standard of architectural education and training by the substitution of a compulsory in place of a voluntary system of qualification, the consequent adequate protection of the interests of that large section of the public affected, and the recognition by the State of the art of architecture as a great national asset to be fostered and cultivated to the utmost."

Quack Architects.

This circular Mr. McArthur Butler has "followed up" with the following letter to the Press:—

"Cab-drivers, doctors, and lawyers must, before practising their callings, have proved their qualification and obtained a licence; but neither of these is needed by the man or woman who desires to claim the title of architect and to practise as such."

"Mistakes in other professions can be buried or otherwise consigned to oblivion, but architectural mistakes are always with us. They will go on being perpetrated so long as it is possible for unqualified persons to assume the title of architect and under that disguise to bring disgrace on the profession and the nation by plastering our landscape and streets with such hideousities and banalities as may be seen on every hand."

"What is the use, under these circumstances, and from an architectural point of view, of art and culture, or of Town Planning Acts, or the many schemes for public improvements put forward from time to time? and is it to be wondered at that architecture, which in more favoured countries is looked upon as a national asset and fostered by the State, is here unrecognised by the Government officially and its practitioners left without any legal status?"

"It is surely in the interest of the public who entrust vast sums of money to architects that they should realise the present state of affairs and bring pressure to bear upon the Government to facilitate such legislation as will provide them with some guarantee that the man who calls himself an architect necessarily possesses at least a minimum knowledge of his art."

"Architects as a whole favour legislation on the lines mentioned, but the public have a still greater interest in the question."

To this letter Mr. Bernard W. H. Scott, A.R.I.B.A., makes the following useful addendum:—

"It is not only necessary that the public be protected against the so-called 'architect' who has had no training in architectural design, but it is also necessary that they should demand a minimum standard of knowledge of building construction, which is every day becoming more and more complicated. They need protection against the charlatans who muddle through their work in a way which is a disgrace to themselves and a mere imposition upon the public."

"Legislation on this matter is urgently needed."

A note upon the Society of Architects' circular or manifesto was given in last week's issue, p. 4.

MOTOR NOTES FOR BUILDERS AND CONTRACTORS.

CONDITIONS UNDER WHICH NEWLY INSTALLED VEHICLES HAVE TO WORK, ETC.

[Specially Contributed.]

WHILE the statement that motor trucking is in its infancy is as old as motor trucking itself, and the expression is so hackneyed that one hesitates to use it, it starts a line of thought that leads far into the field if the thread is followed by one who is thoroughly familiar with the subject, or by an investigator who is determined to find out why this exceedingly lusty and promising infant has not made better progress towards the attainment of its maturity.

Motor trucking undoubtedly is in its infancy, even when compared with pleasure motoring, which really is so young, comparatively speaking, as to have nothing quite so dignified as a real history. There are several conditions that may be taken as proofs of immaturity. For one thing, while engineers very generally have agreed among themselves as to what constitutes good practice in pleasure cars, so far as the more important constructional features are concerned, truck builders still are busy disagreeing on vital points—just as were pleasure car builders a few years ago. Furthermore, while the average man buying a pleasure car knows a good deal about the matter, and has a fair idea as to what kind of a car will suit his particular needs, the average man about to purchase a motor truck is so woefully ignorant concerning the sort of vehicle that will best serve him that he very frequently buys quite the wrong machine, to his own financial loss and to the undeserved discredit of motor trucking generally. Again, most men who own pleasure cars know how they should be cared for and can detect the results of carelessness in the garage, but most truck owners are quite at sea when it comes to finding out reasons for truck troubles, and too often wind up by blaming the machine when the fault really lies elsewhere. In a majority of cases the purchaser of a truck does not know what machine will give him the best return on his investment, and does not know how to use and care for the car so that it will give the best service of which it is capable. In this connection it is safe to say that most trucks are capable of doing more work and better work than their owners get out of them, because the exceedingly important matters of selecting suitable trucks and then giving them the careful attention they certainly should have are not appreciated as they should be.

It is a fact that there is scarcely a motor vehicle built to-day that will not give at least fairly satisfactory service if it is suited to the work assigned to it and if it is properly installed, driven, and cared for. But it too frequently happens that when a prospective purchaser is frankly told what kind of care the car ought to have, he throws up his hands, exclaiming, "What! Do you expect us to give up business so as to look after the machine?"

The lack of common sense shown by an attitude of this sort is apparent. Our old friend the horse can be looked to for an illustration of the inconsistency of such a state of mind. When a firm buys horses for a particular class of work the animals are selected with the greatest care. The general type of horse and the breed and characteristics of the individual animals under consideration are given careful thought. Drivers are selected who know their business thoroughly, and the horses are worked according to their individual

abilities. Elaborate arrangements are made for their housing, feeding, and doctoring. Though most good drivers know what to do for the ordinary ailments of horseflesh, there always is a highly skilled specialist within easy call, if not on the premises. All this is done as a matter of course; the user of horses thinks little of it because it is customary and inevitable and he has been educated up to it.

On the other hand, his lack of familiarity with motor trucks and his idea that because it is merely an organized assembly of pieces of brass and steel it should require very little attention and care lead him to wonder why so much work should be necessary, forgetting entirely that the service expected of the machine is far greater, in proportion to the attention given, than from horses.

It is perfectly true that a great many trucks have failed to do what was expected of them and have been thrown out as failures, not because they were incapable of doing the work laid out for them, but because the owners simply did not know how to get the work out of the cars without destroying their usefulness. In such a case the machine gets a reputation which, though undeserved, will stick closer than the proverbial brother. There are many concerns who will not use motor trucks because of some such unfortunate experience, though under the right conditions the machines might be real money-makers for them.

Often the motor truck is put into service under such conditions that its failure is a certainty even before it begins to work. Consider, for example, the case of a large concern using many horses and transporting a heavy tonnage, desiring to ascertain from experience what the motor truck can do for them, and deciding to purchase a single machine for the trial. The head of the concern or the officer in charge of the transportation department seals the doom of the machine when he makes the old familiar statement, "This is only an experiment, you know; we don't want to go to too much expense until we see how the machine is going to work out."

Every commercial vehicle man knows what usually follows. The machine will be garaged in some corner of the stable where the light is poor and the facilities for doing work are poorer. The attention given to the machine will first be assiduous and later will dwindle to next to nothing, and in any case it is likely to be such as is dictated by a wide lack of experience. Horses and horse equipment will receive first attention in everything. The loading of the machine will be arranged by men accustomed to arranging loads for horses and who, in the first place, have little regard for the load limitations of the machine, and in the second place, cannot, or will not, arrange trips so that the horses will not interfere with the work of the motor. The latter point is one of the greatest importance in some classes of trucking. If, for instance, there are a number of loads going to one destination and the motor truck carries one of the loads, coming behind horse trucks, the machine must often wait for the vehicles ahead to unload, and thus will lose perhaps all the advantage of its superior speed. The same principle is involved when loading is delayed by other vehicles ahead. In

short, all the transportation arrangements of the concern have been arranged with a view to the use of horses, and in using a single motor truck they attempt to use it under forced conditions, which are manifestly unfair to the machine.

It often is very difficult for heads of departments and other officials who have no direct personal knowledge of the details of the work to obtain exact knowledge upon which to base an opinion of the merits of the machine and its work. They receive reports of work done from their subordinates, and their judgment is based on the actual amount of work done and the cost per unit of work. Of course, this is the final test by which the truck must stand or fall, but clearly, when a motor truck is working under conditions so unfavourable to itself as horse conditions are, due allowance should be made for their effect.

A few examples taken from actual experience will illustrate the point. A large concern purchased two motor trucks for experimental purposes with a view to buying a considerable number if a sufficient saving in the cost of transporting their heavy merchandise could be shown. The official in charge of the transportation department was heartily in favour of the machines and gave instructions that all possible opportunity was to be afforded them to show what they could do. At the end of a month, however, his report to the motor truck firm was so discouraging that an investigation was started. An employee of the truck agency was placed on each machine, whose sole duty was to keep accurate records of the time required for trips, for loading and unloading, the time of all delays, reasons for delays, and, in short, all details of whatever sort. The result of the week's work, tabulated, was astonishing. It was found that out of eight working hours three were absolutely wasted, being lost in avoidable delays, such as waiting for horsed wagons to get out of the way, delays getting instructions as to routes and loads, delays due to filling tanks and oiling, work which could not be done in the makeshift garage, and so on. Of the five hours remaining for actual work, nearly a whole hour could have been saved by making slight changes to facilitate loading and unloading the machines. In other words, the machines were doing only one half the work of which they were capable.

In another case the trouble was of a different nature. A machine was sold having a maximum capacity of six and a half tons, though a slight overload was permitted under good road conditions. For a time the results obtained were all that could be desired, but soon there was a falling off in the daily tonnage, and a great increase in the time spent in adjustments and repairs. The official in charge started an investigation and found that the machine was being shamefully abused. Careful figuring showed that the minimum weight of load carried was about the maximum rated capacity of the machine, and that the loads ranged all the way from that up to eleven tons—and that the overloads were not confined to good roads, either. In this case the investigation was followed by no cessation of the evil. The overloading was continued, and the machine was a wreck at the end of a year. These are not imaginary instances.

PROJECTED NEW WORKS.

Housing, Chelmsford and Finchley.

At a cost of £23,000, Chelmsford Town Council are to build 106 houses for the working classes.

Finchley Urban District Council has decided to purchase the Woodhouse Estate, North Finchley, consisting of 36 acres, for £12,000, in order to build 200 working men's houses on it.

Widening of Leadenhall Street, London.

The London County Council is recommended by the Improvements Committee to contribute £45,000, or half the estimated cost, of the widening which the City Corporation proposes, conditional on the making of that contribution, to carry out between Nos. 50 and 56a, Leadenhall Street.

Woking Garden Suburb.

Woking Garden Suburb, which has just been formally declared open by the vice-chairman of the Co-operative Wholesale Society, has come into being as a result of the collaboration of the local Co-operative Society and the Co-operative Garden City Committee. The houses have the typical garden city appearance and have been arranged from the designs prepared by Mr. H. Clapham Lander, A.R.I.B.A.

Cardiff Technical Institute.

The original tender for this work having been increased by £1,475 on the ground of the rise in labourers' and hauliers' wages and the increased price of building materials since the tender was sent in, the Cardiff Building and Sites Committee had made a counter-offer of £750, but the contractors declined to accept this on account of the very unsettled conditions now prevailing in the building trade. It was therefore decided to advertise for fresh tenders.

New Buildings for Glasgow.

At a sitting of Glasgow Dean of Guild Court on June 26th the following "linings" were granted: The Corporation of the City of Glasgow, to erect a coal store at Tradeston Gasworks, Maxwell Road, Glasgow, and to make additions to the Meat Market in Hill Street, Glasgow, and to make additions and alterations to Dixon Hall, Cathcart Road, Glasgow, and to erect a boilerhouse at the Cattle Market, Graham Square, Glasgow, and to erect a dispensary in Brown Street, Glasgow; the Mile End Bottle Works, to erect a bottle works in Broad Street, Mile End, Glasgow; the Buchanan Trust, Glasgow, to reconstruct and add to the buildings in Greenhead Street, Glasgow; William Beardmore and Company, Ltd., Glasgow, to erect a rifle range at the works, Parkhead; the Victoria Infirmary, to make additions to the infirmary; G. and J. Weir, engineers, Cathcart, to add to their works there; David Carlaw and Sons, engineers, Finnieston Street, Glasgow, to make extensions to the present workshops in Finnieston Street, Glasgow; the Distillers Company, Ltd., Port-Dundas, to erect new buildings at Port-Dundas.

Extension of the Royal Scottish Museum.

Edinburgh Dean of Guild Court has granted a warrant to the Commissioners of H.M. Works for an important extension of the Royal Scottish Museum. To allow for the proposed extensions, powers have been taken for the compulsory acquirement of the triangular piece of ground at

the rear of the Museum bounded by Brighton Street and Lothian Street. The extent of the new ground which will ultimately be taken in is about two-thirds of the area of the existing buildings. The extension, which is to proceed immediately, will be built mainly on vacant ground, but will run at points into two tenements in Lothian Street. The cost of the work to be put immediately in hand will be roughly £40,000, exclusive of ground and property purchase, and the entire scheme when completed will run into something like £100,000. The present extension is to be three storeys high, with a basement, and will have a stone frontage to West College Street and Lothian Street.

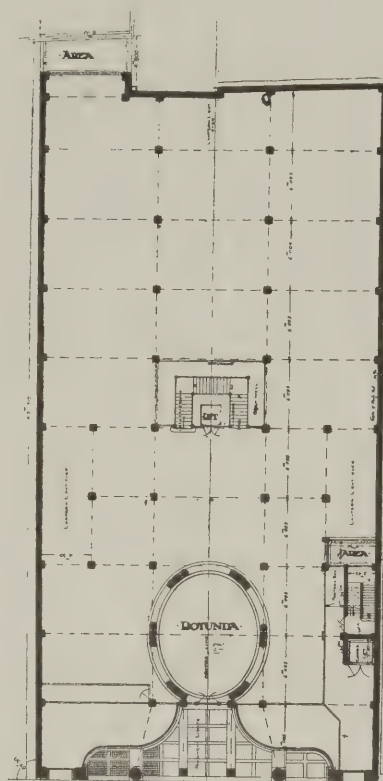
ROYAL INSTITUTE OF BRITISH ARCHITECTS: MEMORANDA.

Revised Schedule of Professional Charges.

At a special general meeting of the R.I.B.A., held on Monday last, July 1st, consideration was resumed of the draft revised schedule of professional charges, commencing with Clause 2.

Licentiate and the Fellowship.

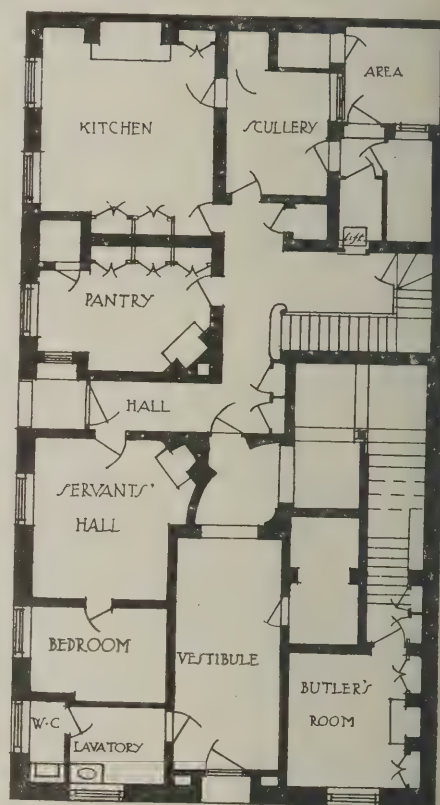
The next examination of Licentiate desiring to qualify for candidature as Fellows will take place in January next. Full particulars may be obtained from the R.I.B.A. Secretary.



GROUND PLAN

NEW BUSINESS PREMISES AT BUENOS AIRES FOR MESSRS. MAPLE AND CO.

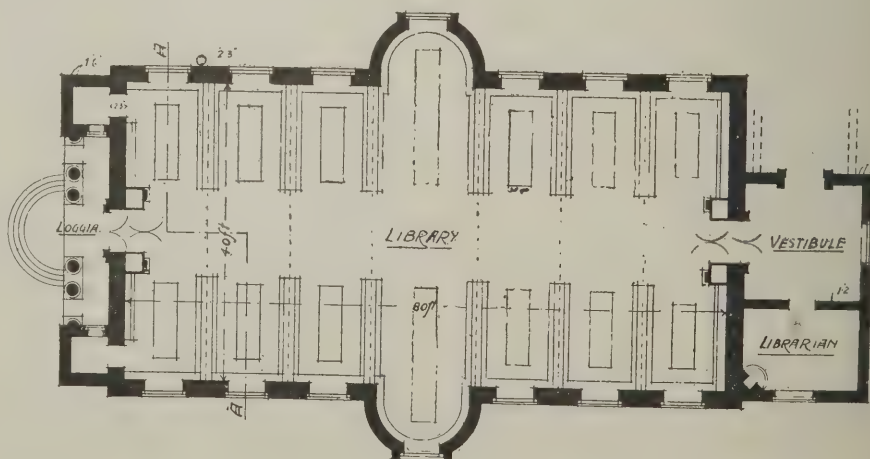
(See pages 35, 37, and 43).



SCALE 10 5 0 10 15 OF FEET

HOUSE IN SMITH SQUARE, WESTMINSTER.

(See page 43 and Centre Plate).



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THE LADY TATE LIBRARY, BEDFORD COLLEGE FOR WOMEN.

(See pages 26, 42, and 43.)

THE TOWN PLANNING OF GREATER LONDON.

DEPUTATIONS TO THE PRIME MINISTER.

ON July 12, 1912, the following letter was sent to the Prime Minister:

"The Right Hon. H. H. Asquith, P.C., M.P., Prime Minister.

"Sir,—A conference convened by the Royal Institute of British Architects, consisting of representatives of the Royal Institute of British Architects, the Royal Academy, the Institution of Civil Engineers, the Surveyors' Institution, and the Institution of Municipal and County Engineers, who are deeply interested in the development of Greater London, has been considering the serious position which is likely to arise owing to the fact that numerous town planning schemes are being prepared for the districts surrounding London without any power existing to co-ordinate these different schemes, and to secure the carrying out by these schemes of the recommendations as to main roads which have been made both by the Royal Commission and by the Traffic Department of the Board of Trade in their valuable reports.

"These town planning schemes have to be approved by the Local Government Board, but they come singly, and the Board has no power to guarantee to any local authority that if it provides a portion of a main road running through its area, the remainder of that road will be carried out by the abutting authorities, nor has the Board any power to apportion the cost of such a main road equitably among these different authorities.

"At present the authorities concerned are so numerous and disconnected that concerted action is hardly possible. The different bodies having rights and powers with regard to the making and planning of roads within the area of Greater London are as follows:

"The London County Council possess exclusive powers under the Town Planning Act within the Administrative County of London, and without their consent no joint body can be set up under Clause 55 of the Act.

"The Local Government Board have power to supervise, amend, and approve action taken by local authorities under the Town Planning Act; power to call upon the L.C.C. and other local authorities to prepare a town planning scheme.

"The London Traffic Branch of the Board of Trade have power to spend a certain sum in studying traffic problems, and issuing reports upon them.

"The Development and Road Board have power under the Development and Road Improvement Funds Act (a) to make advances to highway authorities for improving existing or making new roads, (b) to construct and maintain any new roads.

"The Road Board acts through—

"The Treasury, who before approving the construction of a new road, must consult the Local Government Board and also be satisfied that notice of intention to construct has been sent to every highway authority affected.

"Greater London.

"Outside the L.C.C. area, town planning powers under the Act are possessed by: (a) the councils of all boroughs, (b) the councils of all urban districts, (c) the councils of all rural districts, or a total of some seventy or eighty different authorities.

"It will therefore be evident that the consistent, dignified, and practical development of Greater London is a subject of

great and pressing difficulty. No authoritative expert body exists empowered to deal with the main roads of the metropolis as suggested by the Royal Commission, to co-ordinate the work of the different local authorities, and secure the planning and construction of the main arterial roads that are required to accommodate the traffic of Greater London.

"The conference of institutions interested in the subject is sure that the importance of the proper development of London is present to the mind of His Majesty's Government and requests you to receive a small deputation to express its view that it is necessary to co-ordinate existing bodies for the special purpose of creating a system of main roads for Greater London.

"We have the honour to be,

"Sir,

"Your obedient servants,

(Signed)

"REGINALD BLOMFIELD, President of the Royal Institute of British Architects.

"EDWARD J. POYNTER (in support of the Royal Institute of British Architects), President of the Royal Academy.

"EDWARD G. STRUTT, President of the Surveyors' Institution.

"R. J. THOMAS, President of the Institution of Municipal and County Engineers.

"W. C. UNWIN, President of the Institution of Civil Engineers."

The Prime Minister Consents.

In May of the present year a second letter on the subject was addressed to the Prime Minister, emphasising the extreme urgency of the matter and pressing for an interview at the earliest possible date. The Prime Minister thereupon consented to receive a deputation in his room in the House of Commons on July 3rd, at 4 p.m. The deputation was led by Mr. Reginald Blomfield, A.R.A., P.R.I.B.A., other representatives of the Institute including Sir Aston Webb, R.A., Mr. Raymond Unwin, Professor Beresford Pite, Mr. H. V. Lanchester, Professor S. D. Adshead (of the Chair of Civic Design in the University of Liverpool), Mr. W. H. Seth-Smith, and Mr. Ian MacAlister, secretary. Representing the Surveyors' Institution were Sir Alexander Stenning, Mr. H. Chatfield Clarke, and Mr. Leslie Vigers. Representing the Institution of Civil Engineers: Sir John Wolfe Barry and two others. There were also present three representatives of the Institution of Municipal and County Engineers, and three representatives of the London Society.

To receive the deputation, on July 3rd, Mr. Asquith had with him Mr. Burns and Sir George Gibb, the chairman of the Road Board.

Deputation Speeches.

Mr. Reginald Blomfield, P.R.I.B.A., in introducing the deputation, referred to the absence of co-ordination between the various authorities with respect to the planning and construction of arterial roads. They wished to urge the establishment of some central authority to hold the balance between the various interests, which would be able to handle the matter from a more comprehensive point of view than was open to any of these authorities individually.

Sir Aston Webb said that at the recent

Road Conference it was unanimously agreed that the improvement of arterial roads leading out of towns was a matter of urgent necessity. Unless something was done very soon, the cost of carrying out this work would become prohibitive, and for other reasons almost impracticable. A great deal of surveying had been already done, and reports had been sent in, but the Traffic Board had no funds and no executive powers for laying down any complete scheme. The consequence was that improvements were being made in a haphazard and piecemeal way. It was supremely important that there should be some authority with dominating power which would be able to lay down a scheme of roads out of London.

Mr. L. Vigers, speaking for the Surveyors' Institution, complained of the difficulty of bringing the various authorities into agreement.

Mr. Raymond Unwin quoted the experience of Berlin as a useful example. There, owing to want of co-ordination traffic became congested, and a public agitation sprang up which resulted in a new Act, under which a central town planning authority was created last year with power to regulate all traffic matters except the State railways, and to co-ordinate the local town planning schemes.

Alderman W. Thompson, chairman of the Greater London Advisory Town Planning Committee, said that many of the local authorities had town planning schemes, but they did not know who was going to make the arterial roads or whether they were going to be made, or whether their schemes would link up with them. Many of the town planning schemes were being suspended on that account. Owing to lack of foresight in the past £18,000,000 had been paid by local authorities in the past ten years for street widenings. They wished to avoid that expenditure in the future.

Other members of the deputation having spoken,

The Prime Minister Replies.

Mr. Asquith, in reply, said he quite felt the force of what had been said, both by the gentlemen who represent the architects and surveyors, who look at the matter from the æsthetic and technical side, and those who represent the local authorities. The Government were most anxious to give any help in their power towards a solution. He would propose for the moment that the best thing to do was to go into conference with the President of the Local Government Board, who was quite willing to lend his services, and who would arrange without any avoidable delay that such a conference should be held, and that all the various interests—some of which appear at first sight to be in conflict—should be heard in mutual conference. They might thus tide over the immediate problem that lies before them. On the larger question as to what should be the character and position and the precise functions of any authority which might ultimately seem to be the best fitted for the purpose in regard to the general survey of schemes of this kind, that was a matter which he should like to reserve for further consideration.

The Prime Minister received at the same time a deputation from the local authorities in the Greater London area. This

deputation submitted the following resolution, which was passed unanimously at a conference convened by the National Housing and Town Planning Council and held on May 27 and 28 last at the Westminster Palace Hotel: "That this Conference begs to represent to the Prime Minister and the President of the Local Government Board that the public departments which can by means of their powers co-operate and assist in the framing of town planning schemes and the provision of arterial roads may be asked to confer with the local authorities in Greater London collectively and give their assistance in every way possible in preparing town planning schemes for that area and that the Prime Minister and the President of the Local Government Board be asked to receive a deputation from this Conference to urge more explicitly the necessity for such consultation." This resolution was passed by a conference at which the majority of the local authorities in the Greater London area were represented.

COMPETITIONS OPEN.

JULY 20.—CARD ILLUSTRATING CONSTRUCTIONAL STEELWORK AND REINFORCED CONCRETE.—Messrs. D. G. Somerville and Co., 120, Victoria Street, Westminster, invite architects and designers to submit a card illustrating their constructional steelwork and reinforced concrete according to conditions drawn up by Mr. Herbert W. Wills, F.R.I.B.A., who will act as assessor. Particulars (1s.) from above address.

JULY 21.—COTTAGES, ATHY.—Plans for labourers' houses are required by Athy U.D.C., Ireland. Particulars, Mr. J. A. Lawler, Town Clerk, Town Hall, Athy.

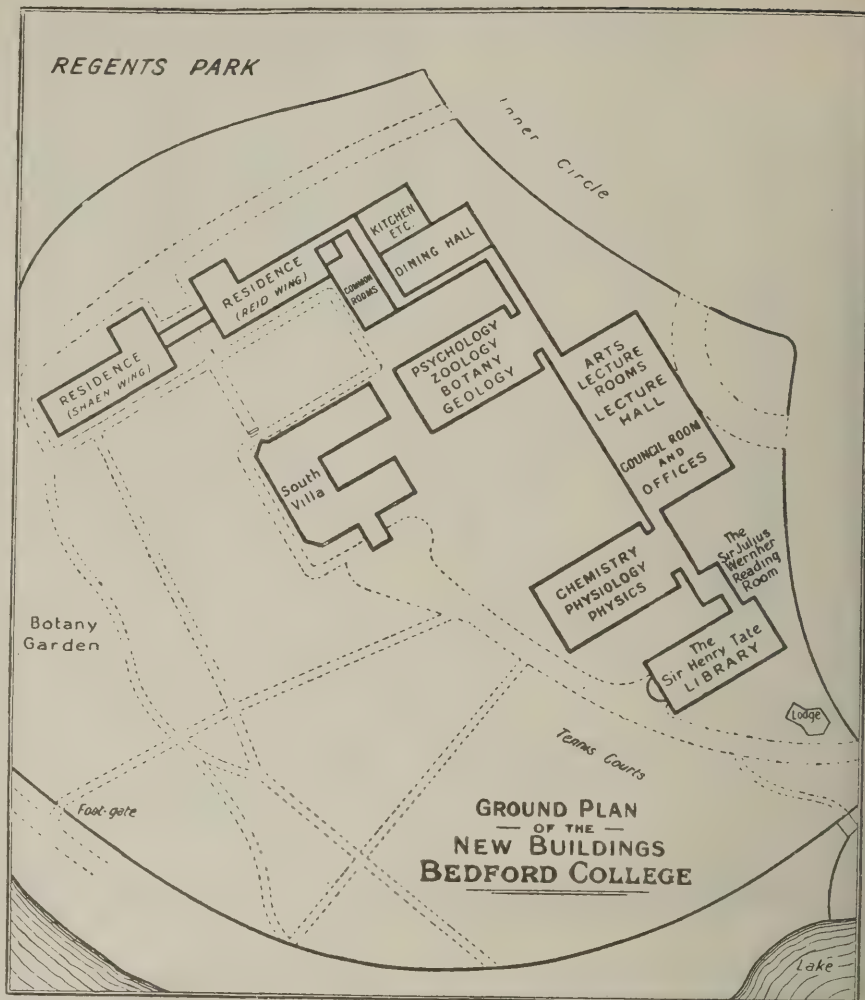
JULY 24.—SANATORIUM, FAZAKERLEY.—Corporation of Liverpool invite designs for a sanatorium to be erected at Fazakerley, and to contain 250 beds. Premiums 150, 100, and 50 guineas. Particulars (two guineas, returnable), Edward R. Pickmere, Town Clerk, Municipal Offices, Liverpool. [NOTE: *The date has been extended from that previously announced.*]

SEPTEMBER 1.—TOWN PLANNING, HIGH WYCOMBE.—Schemes for the town planning of the borough are invited by the Borough Council. Premiums £25, £10, and £5. Particulars, T. I. Rushbrooke, Borough Surveyor, High Wycombe.

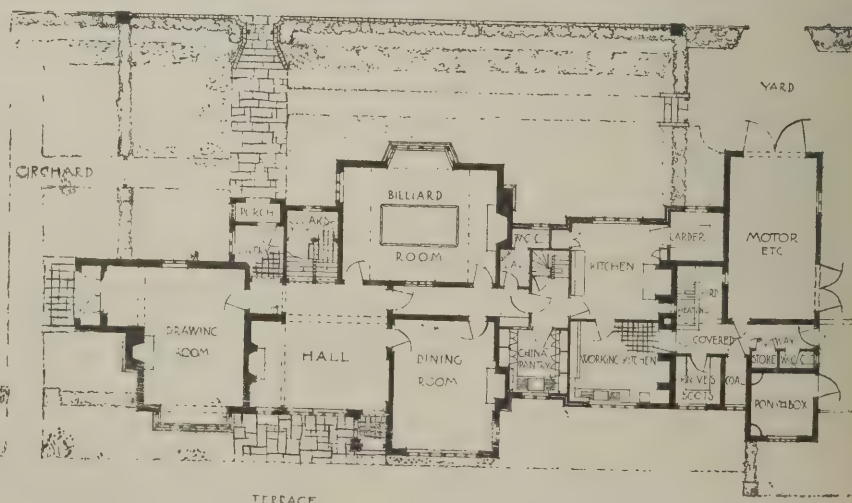
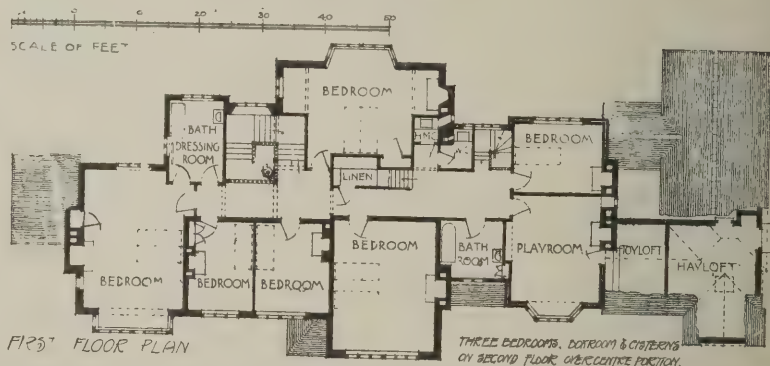
NOVEMBER 1.—ROYAL PALACE AND LAW COURTS, SOFIA.—Particulars, Commercial Intelligence Branch, Board of Trade, Basinghall Street, E.C.

The London Plasterers' Strike.

The strike of the London plasterers which commenced on May 10th last was brought to a close on Monday, the 30th ultimo, when the representatives of the operatives, at their request, met the Committee of the London Master Builders' Association and London Master Plasterers' Association, and an agreement was signed by both parties. The terms are practically those offered by the employers at a meeting on June 2nd last, and include an increase of $\frac{3}{4}$ d. per hour for day gang work, and a slight alteration in respect to the working of night gangs, whilst the arrangement as to overtime remains the same as in the last rules. The money allowed for country expenses when the men are sent out of London was increased.



(See pages 26, 42 and 43).



"YEWLANDS," HODDESODN, HERTS: GROUND AND FIRST-FLOOR PLANS.
GEOFFRY LUCAS, F.R.I.B.A., ARCHITECT.

(See pages 39 and 43).

THE ARCHITECTS' & BUILDERS' JOURNAL.

Wednesday, July 16, 1913.

Volume XXXVIII. No. 966.

No. 42.



(From Piranesi.)



MODERN GERMAN ARCHITECTURE: NEW BANK, DUISBERG.
BIELENBERG AND MOSER, ARCHITECTS.

(See page 58.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

JULY 16, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 38 No. 966.

A Candid Critic of Architecture.

A VERY lusty destructive Mid-Victorian critic of architects and architecture was Mr. John T. Emmett, who, in the seventies and eighties, laid about him with exhilarating vigour. In that day, "slashing criticism" was still in favour, although it had assumed much of the flatness of a stale convention. Its force and fervour were mostly imitative. But "Crusty Christopher" North's swashing blow had not been completely forgotten; the "Quarterly" was still, on occasion, "savage and Tartarly," and the "Saturday Review" was regularly qualifying for distinction as the "Saturday Reviler." Mr. Emmett wrote in the "Quarterly" and in the "British Quarterly" and had half-a-dozen of his essays or assaults on architecture reprinted as pamphlets, which were afterwards bound into a book that lies before us.

First of the six essays, and the only one with which we can now deal, comes a diatribe on "The State of English Architecture." We are shown at once that in 1872 that state was parlous. Our "most conspicuous Gothic architects" had submitted designs for the new Law Courts, and Mr. Emmett found the exhibition of them "melancholy and hopeless, almost without exception, an artistic inferno and a national disgrace."

Street's design had been finally selected, and it is interesting to see what this competent, if caustic, contemporary critic thought of it. There is no apparent reason, Mr. Emmett opines, why the front should not have been treated in a simple and dignified manner. "The roof, however, is broken into fourteen distinct compartments, with as many angles in the line of wall, producing an infirmity of outline that has given the front a feeble, dislocated look. The windows are pretentious, mean, and ugly, the large pinnacles are useless and absurd, and the tower is not worth the cost of its foundations." That is pretty well for a beginning; and after the lapse of more than forty years these home-truths would find more than forty-fold the support that was accorded them when they appeared in the "Quarterly." Forty years ago, when the delirium of the Gothic fever was at its height, there was some credit in perceiving that these buildings were a colossal monument to the ineptitude of the Gothic Revival, and that the churches built under the same influence were "mere specimens of the transient ecclesiastical fashion, instead of permanent monuments of art."

Mr. Emmett fully realises the responsibility of the public for bad design. The public, he observes, were thoroughly well pleased with the then new Blackfriars Bridge, "though the design is really a wonder of depravity—polished granite columns of amazing thickness, with carved capitals of stupendous weight, all made to give shop-room to an apple-woman, or a convenient platform for a suicide; the parapet, a fiddle-faddle of pretty cast-iron arcading, out of scale with the columns, incongruous with the capitals, and quite unsuited for a work that should be simply grand in its usefulness; and, at each corner of the bridge, a huge block of masonry *à propos* of

nothing, a well-known evidence of desperate imbecility." The applewoman and the suicide may be dismissed as irrelevant. They have rather less to do with criticism pure and undefiled than have the more recent references to "Cole's Tea-kettle" (meaning the Albert Hall), or the present-day comparisons of the London County Hall to a blacking factory or of the Westminster Cathedral campanile to a factory chimney. Mere facetiousness should have been beneath the dignity of a Quarterly Reviewer. A degrading similitude is also applied to the mooring-rings on the Thames Embankment. "On the outer face of these obstructive piers there are large metal lions' heads and rings; they look like door-knockers; but, supposing they are meant for mooring-rings, they should be solidly fixed down in the wall, below high-water line, instead of being hung high up in the light parapet, and out of reach. As mere ornaments they are childish; their large size diminishes the apparent scale of the work to which they are attached, and their unmeaning repetition every thirty yards for some six miles will be a weary monument of the dulness of the engineer who designed them." This onslaught will be noted with more interest than pleasure by those who have expressed admiration of the lion-headed rings that are as yet the chief decorative feature of the parapet of the London County Hall: but it cannot be fairly said to knock at Mr. Knott's door.

The essayist's pungent attack on the Albert Memorial must have seemed almost sacrilegious when he made it; and even now the ridicule he heaped upon it seems to be more than a little overdone. "The monument, above the ground, commences with a large inflation of brick piers and arches, which support long flights of steps and landings, with abutting piers; and when an architectural student totally without ideas starts in design, such piles of steps and piers are his immediate resource. The monument is thus founded, in a way quite unmonumental, on a vast conglomerate of coal cellars and street kerbs. As steps are the first refuge for the architectural destitute, so the four Quarters of the Globe assist the monumental sculptor. They admit of any nonsense," and so forth, in the approved resounding manner of the uncompromising Spartan father.

It is unfair to retort upon the destructive critic that he demolishes but does not build, or depresses without edifying. One man has this proclivity, another that, and the encroachment of the one on the other's province leads commonly to ludicrous results. Our essayist attempted some sort of constructive policy, which, however, was itself destructive. He admired Kemp's Scott Memorial because Kemp was not a trained architect, but a working carpenter. In Pugin he could discern germs of art, which might have developed if the architect had remained at the carpenter's bench, to which he resorted for "the discipline of labour." Art, the essayist holds, is purely democratic; "it is in every age the exclusive trust and treasure of the workmen." Consequently, the architect, as we know him, is the artificial and ineffectual

product of an emasculate social system. If we are to return to sanity in building he must give way to the Master-Workman, who, look you, is to be no "pluralist," running a sort of factory for the execution of the many commissions with which he has to juggle simultaneously, but who is to concentrate himself heart and soul on one work at a time. The Royal Gold Medal might be given to the man who had refused most commissions! This Master-Workman business was the current cant of the seventies, and is the derision of to-day. Mr. Emmett was an uncommonly sagacious critic but a signally inept reformer—a wise physician, when he said, "Lo, here and here thou ailest" but a mere empiric when he prescribed the remedy in the formulæ of Ruskin and Morris. On the whole, we are glad of him, and of the clear indication he gives that not even at the most depressing period of British architecture was art without a witness. H.

Building Noises.

A CORRESPONDENT of "The Times" who lives in the small secluded area of which Barton Street is a part writes to complain of the "intolerable noise of hammering on iron" that begins every morning at half-past six. Why, he asks, should the work not be deferred to the more merciful hour of 8.30, or even 9 o'clock would leave plenty of light for an eight-hour day. Cabinet Ministers and other people "whose sleep is of national importance" are disturbed in unwarrantable fashion, while the humblest occupier is distressed by the needless noise. At first sight one is disposed to laugh at the idea of building work commencing at 8.30 and 9, but, as a fact, there is a movement already in that direction. At the present time the hours in London are fifty in the summer and forty-four in the winter, work commencing at 6.30 or 7. But there is a tendency towards work being started after breakfast. Already this is done in some provincial districts, and there is a likelihood that a similar practice will be adopted in London. Ultimately, in the glorious hey-day of labour, we may anticipate an 11 to 3 working time for the bricklayer, with two hours for the midday meal!

Ventilation of Cinema Palaces.

IN view of the astonishing vogue which the multitudinous picture palaces enjoy throughout the country it is very essential that the closest attention should be given to the ventilation of these places of amusement. We are glad to note, therefore, that at one of the meetings of the Royal Sanitary Institute Congress at Exeter last week a resolution was adopted recommending "that the Council of the Royal Sanitary Institute be requested to take all steps in its power to ensure that cinema and cinematograph picture palaces shall be designed and built with efficient windows and means of ventilation." Undoubtedly the cinema palace is no passing craze, but has come to stay, and when one remembers the packed audiences that are present, both in the day and in the evening—especially the latter—inefficient ventilation and lighting are likely to create a serious danger to public health. As one member affirmed at the meeting in question, some of the halls are very inefficiently lighted and ventilated, besides being unclean. The only light found in many of them was the ordinary gaslight turned up after the performances. The day lighting was very unsatisfactory, and the rooms were given no opportunity of purification by sunlight, which was now generally advocated for that purpose by leading sanitarians. There could be no obstacle in the way as regards cost, because the shows appeared to pay, and he thought that those who ran them should be called upon to put them into proper sanitary condition. We are thoroughly in accord with all this. The value of daylight, and, more particularly, sunlight, as a purifying

agent has long been recognised and made use of, but it is largely overlooked in the design of picture palaces. What is needed, in our opinion, is ample height to the auditorium, with cross-ventilation, and some arrangement of panels or shutters which could be pulled back for a regular time every day in order to admit abundant daylight. The question of the adequate ventilation of large public rooms is, of course, always with us. Only a few days ago it came up once more in the House of Commons, where, despite all that has been done to render members lively with pure atmosphere, the familiar complaints are still made. Sir Frederick Banbury clamoured for the old-fashioned plan of open windows, which, he said, was far better than sitting on the top of trellis work and having air pumped up around one's feet. We have gone into this matter on former occasions, and can only say now that in an apartment like the House of Commons the policy of the open window would never yield satisfactory results; and that the plenum system, despite its shortcomings, is as good as can be expected. The fact is, of course, that there is no question connected with the equipment of buildings over which more difference of opinion exists than this one. And bearing in mind the difficult nature of the task of determining precise values, we cannot see that the future offers much hope of any general agreement.

Mr. James A. Whitelaw.

A CAREER of great promise was extinguished when, on July 5th, Mr. James M. Whitelaw was drowned while bathing at Bournemouth. He was a young Scotsman who, while in the office of Mr. Alexander Skirving, of Glasgow, was awarded the Alexander Thompson Travelling Scholarship. In 1906 he came to the London office of Mr. J. J. Burnet, with whom he remained for about six years. In 1910 he won the Measured Drawings Medal of the R.I.B.A. for a set of drawings of the Wellington Memorial, and shortly afterwards he obtained the prize of £15 in the Royal Academy School of Design. In the present year he was awarded the coveted Soane Medallion of the R.I.B.A. with a design (for a terminal railway station) which was easily the most imaginative work submitted in an unusually strong year. This is not merely the posthumous praise, but sincere criticism. In reproducing his perspective in our issue of January 29th we said: "The chief attraction of this year's competitions is undoubtedly Mr. Whitelaw's design for the Soane Medallion. Mr. Whitelaw shows that he is able to appreciate the intricacies of a large and complex problem, and successfully to grapple with them. In his lay-out and general conception he displays gifts of imagination and a breadth of outlook which are remarkable." From the little that we saw of him personally we formed the opinion that, super-added to his commanding ability, he had strong individuality of character. We are convinced that had he lived he would have made his mark on architecture. Yet he has been barely permitted to pass the threshold of a career that would surely have been famous.

Conciliation Boards and the Strikes.

WITH reference to a note in last week's Journal on the settlement of the London plasterers' strike, Mr. A. G. White, the general secretary of the National Federation of Building Trades Employers, has sent us a letter (for which we are unable to find room in the present issue, but which we hope to publish next week) in which he denies that the strikes can be regarded as evidence that the Conciliation Boards have failed of their purpose. He declares that, on the contrary, the strikes, occurring where, for one reason or another—or for no reason at all—the Conciliation system is not in force, afford strong evidence of the need for its adoption.

NEW PATHS IN GERMAN ARCHITECTURE.

[Specially Contributed.]

ANYONE who has visited Berlin recently must have become aware of the fact that German architecture is embarking upon new paths—that it is no longer possible to consign it to two convenient limbos of sterile clumsy Renaissance or inane New Art, as was the custom a decade ago. The latter is practically an extinct monster, though the former is still largely the Court style, as witness the colossal Royal Library now nearing completion on the Unter den Linden, to add yet another to the ponderous list on which outstand the Cathedral, the Kaiser-Friedrich Museum, and the Parliament Buildings. One would like to attribute the death of New Art in Berlin to the Charlottenburg Town Hall, its greatest and most amazing effort; it must have been apparent to everyone that if this manner were persisted in the whole city would be ruined, body and soul.

The bulk of this new movement must be attributed to the influence of one man, Alfred Messel, who did not do a great deal of work, and died comparatively young in 1908. His name is the first one hears in the Berlin architectural world, and through his office everyone who is doing anything of note to-day appears to have passed. Messel is an example of the extraordinary influence which a philosophic thinker can wield, without necessarily writing down his theories, but producing certain thoughtful and arresting works. It is not the present intention to make a study of Messel or of his buildings, as this has already been done with Germanic thoroughness in his own country; but no notice of the current architecture of Berlin is intelligible without relating it to his work. Messel set out as a typically efficient architect without strong convictions, designing in various historic styles with equal facility; but a sudden awakening appears to have come to him, perhaps on realising that unless New Art were checked it would overspread with its cancerous growth the whole body of architecture. He thereupon sought to develop two old styles, both native to Prussia and both to serve different purposes. The first was to be a constructional style, particularly adapted for warehouses and great stores, and was founded upon

late Gothic of a Perpendicular tendency. In Wertheim's huge store in the Leipsiger Strasse he worked out this theory completely and finally in the addition which he made to his own earlier building. This addition is perhaps the best-known modern German building, and it is too frequently condemned out of hand as a freak. This it certainly is not, but is the result of a similar train of reasoning that has led Mr. Cass Gilbert to design the Woolworth skyscraper. His second style was for houses, hotels, and public buildings, in which construction is subservient to comfort and dignity. One can imagine him (though this is purely hypothetical) casting his mind back on the various types of German town architecture and rejecting both the early autochthonous Renaissance and that which had sprung up under Italian, French, or general Baroque influence. The former did not possess sufficient dignity and the latter had nothing national about them—they were at best pale reflections of Rome, Paris, or Vienna. But the work of two Berlin architects in the past, Langhans (1733-1808) and Schinkel (1781-1841), possessed characteristics which could not be described as borrowed from contemporaneous sources, though it was closely formed on the antique. Schinkel's treatment of architectural features in a flat manner, his delicate modelling of plain surfaces, particularly appealed to Messel, sated as he was with the plethoric fulness of the coarse work of the day. On one thing, however, he apparently disagreed with Schinkel—his use of a smooth fine-surfaced material, whether of stone or "stuc." This material treatment he felt to be suitable to Greece and the south of Europe generally, but artificially forced in stern northern Prussia. He then discovered the Muschelkalkstein, a fossil oolite from the Jura, which bears considerable resemblance to our Roach-bed Portland stone. Imagine Schinkel's work translated into a stone whose grain is not only coarse, but pitted with faults, crevices, and even crevasses which the mason must frankly wink at and the architect allow with alacrity, and you have Messel's version of modern urban architecture, official and domestic. This same



NEW OPERA HOUSE, CHARLOTTENBURG, BERLIN. HEINRICH SEELING, ARCHITECT.

stone was naturally applied to the warehouse style, as its coarseness bore considerable affinity to the brickwork of the old native North-German Gothic. The very modernity of Berlin, with its almost entire absence of mediæval remains, must have additionally recommended this stone, which in a few years—nay, almost as new—has the appearance of a hoary antiquity; whereas its almost crystalline hardness (so that for interiors it will take a very tolerable polish) prevents any possibility of a crumbling decay. To an English architect accustomed to condemn the slightest fault in his Whitbed Portland stone, and with the utmost horror of a loose shell, there is something almost immoral about the use of this cavernous stone, but there is no doubt that it gives to modern German work an astonishing degree of vigour and rugged strength. Messel further attempted to impart a distinctively Germanic flavour to both these revivals by the use of a huge panted roof, with flat lucarne dormers. Again, English eyes are offended by what frequently seems an unnecessary burthen imposed, picturesque enough in single instances, but certain to spoil any general ensemble, as is very evident in the great new street which continues the Charlottenburg Chaussée. The days when such a roof was necessary for drying the vast monthly wash have gone by, and this homely domestic touch appears somewhat out of place in an undomesticated town like Berlin.

Side by side with this use of rough stone and return to earlier styles of architecture was an archaistic movement in sculpture, led by such men as Hugo Lederer. It is more possible to trace this development from New Art sculpture, which leaned strongly in the direction of affected simplicity and drapery of the texture of blankets. Only a slight twist was necessary to convert this into a revival of archaic Greek, which harmonised admirably with Messel's rougher version of Schinkel. This elaborately simple and intentionally stiff sculpture, which is still a rarity with us, though the work of Mr. Hodge, Mr. Epstein, and Mr. Gill, particularly the last, must be classed as of the same movement, is

now become the natural means of expression in Germany; it is certainly a relief after the debauched Baroque, without the lightness and grace of Paris or Vienna, with which Berlin buildings were wont to be plastered. The archaic, of course, has been grossly abused, and one may see in the Kaiserdamm—that haunt of the last word in Berlin architecture—houses which have no ornament or architectural features whatever on them—entirely blank fronts of roughish stucco—with the exception of a row of huge crude torsos and perhaps a grinning mask or two placed at a venture.

Since Messel's death Berlin architecture has moved more definitely in a Greek direction, though still retaining his modifying factor of rough stone; in fact, so universal has the use of this *Muschelkalkstein* become that, though at first it was exceedingly cheap, coming from a quarry that was considered valueless, it is now one of the dearest building stones in Germany. Some of the early buildings under Messel influence, however, do not show this Greek tendency so strongly; for example, the new Stadthaus, built in 1908, by Von Hoffmann, the City Architect of Berlin, is nearer to San Michele than to Schinkel. Though only three years or so later than the Charlottenburg Town Hall, this really great building shows how completely the progress of New Art had been arrested. The fronts are treated with a massive Roman Doric order on a lofty rusticated basement, and the side elevations, which are only relieved from absolute repetition by the change of the square pilasters to half-round columns for the central bays, are particularly impressive, though distinctly forbidding in character. The plan and the central hall, in which the coarse oolite stone is polished and has taken on the colour of old ivory, are both worth careful study. To the same phase belongs the Charlottenburg Polizei Präsidium (1910), in which Roman or even Baroque influence is still visible under the characteristic wall surface treatment and picturesque roof of Messel's manner.

Before dealing with the Greek phase which now appears to predominate, it may be well to allude to the



SCHULTE'S PICTURE GALLERY, UNTER DEN LINDEN, BERLIN. ALFRED MESSEL, ARCHITECT.



PERSIAN CARPET STORE, UNTER DEN LINDEN, BERLIN.

results of Wertheim's building; these are by no means so widely spread nor so fortunate—indeed, so individual a work as Wertheim's was sure to provoke plagiarism and caricature rather than rational development. This is clearly seen in a new building in the Frederickstrasse near the Belle Alliance Platz, and in another large store on the Alexander Platz, where the mullion-pilasters spring from a crawling spawn of children and reptiles.

But the prevalent architecture of Berlin to-day can only be called Neo-Grec, though it is Neo-Grec with a strong Germanic feeling about it, largely produced by the use of this rough stone. The most used feature is the Greek Doric column, which in fact is used in season and out—there exist bay windows four storeys high with small Doric columns forming the mullions to each floor. The example illustrated below of the ground floor of a block of flats in the Kaiserdamm, near the Reichskanzler Platz, shows carefully detailed Doric columns and arches (in this case carried out in a fine white sandstone), under a superstructure of stucco of so commonplace a nature (note the sill mouldings) that the architect's services would appear to have been dispensed with above the ground-floor level. A brick building lower down the same great street has a recessed central feature spanned by a balcony at each floor; the entrance is flanked by two strangulated figures, which, though they make one smile by their position, are nevertheless full of vigour; below appear the inevitable Doric columns carrying an iron lintel. These are typical of work that is proceeding on all sides, and show that the movement is not in the hands of an initiated few, but is the general means of expression of the day.

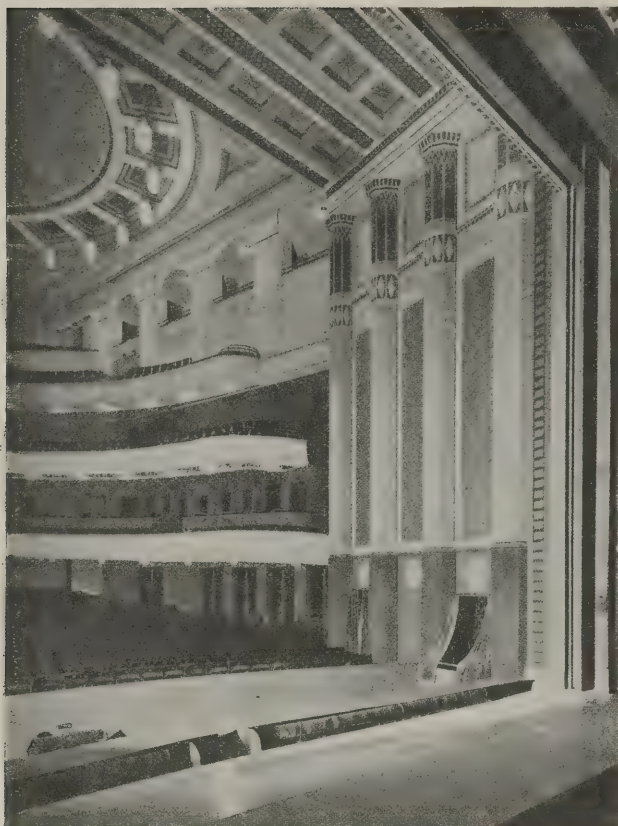
The most important work of this phase is the Charlottenburg Municipal Operahouse, now nearing completion, in the Kaiserdamm. This huge building, by Seeling, the City Architect, is a monument to all that is best in contemporary German culture, so much more democratic than ours. The very size of the building, necessarily kept plain to baldness, is the result of the desire for cheap seats, only possible with a vast

audience, on which of course one can always safely count in Germany (no such fiasco as the London Opera House would be possible in Berlin). To one side of the Opera House is a three-storey restaurant, whose longitudinal axis is on that of the square tower over the stage; there is a forecourt formed between the side of the auditorium and the front of the restaurant which makes a delightful open-air café giving on to the Kaiserdamm. The main façade has a row of twin Ionic columns to the main entrance; the order is more Roman than Greek, and the columns, which are fluted without fillets, have no bases, but stand on a square rusticated block. The arches between, with their heavy key blocks, again recall San Michele, and it will be remembered that there is an old copy of the Palazzo Pompei of Verona at Potsdam. But the confinement of the columns to the entrance and the side portico overlooking the open-air café, and the use elsewhere of very flat antæ pilasters, gives the building no Roman appearance. The panels over the entrance, two of which are not yet completed, are admirable examples of German decorative sculpture, and also of modern German full-blooded humour. The front of the restaurant is treated in a more domestic spirit, with a flag segmental bay having Greek Doric columns on the ground floor carrying a balcony, and above the flat pilasters that Messel invented, without base, fluted, and having for cap a slightly projecting block enriched with a fret. The interior inclines to New Art. It would appear that while sculpture perhaps preceded architecture in this movement, decoration is as yet behind it. There is still to be seen the prevalence of New Art dodges, rather than an attempt to develop Greek stencil and vase patterns—perhaps these will follow. The interior, however, possesses that bright and clear simplicity and delicate harmony of colour which we are accustomed to find in modern German schools.

The most charming interior, in this simple vein, is the Kammerspiele or Chamber play-room attached to Professor Reinhardt's Deutsches Theatre. It is the work of one of Messel's pupils, the late William Müller,



DETAIL OF FAÇADE IN THE KAISERDAMM, BERLIN.



NEW OPERA HOUSE, CHARLOTTENBURG:
VIEW OF AUDITORIUM FROM STAGE.

and is an example of the success of the opposite to what one has always been accustomed to consider the essentials of theatric decoration. Instead of brightness and gilding there is a plain rectangular room panelled up to the ceiling in mahogany, treated with about as much flatness and absence of moulding as a joiner could well contrive. The ceiling is also unenriched, its only ornament being a magnificent glass lustre in the centre; glass lustre sconces, too, of simple but elegant design, are placed against the panelling all round. In complete tone-contrast is the circular foyer, a room of nearly the same capacity as the Kammer-spiele itself.

Instead of the usual crush of a foyer it is unexpectedly charming to enter a comparatively empty room round which people are quietly strolling, the polished parquet floor, white walls, and heavily contained windows forming a fine background to the moving figures. In these two interiors all detail or ornament is reduced to such a minimum that it is impossible to assign its inspiration to any historic style, but its relationship to Messel's work is evident.

In the Unter den Linden there are two typical buildings, both emphasised by their neighbours: the Persian Carpet shop at the corner of the Charlottenstrasse has, facing it across this street, the new Royal Library in the antiquated Court style already alluded to. The other, nearer the Pariser Platz, is a not very successful attempt to combine Messel's Gothic mullioned manner with a cornice and attic; its neighbour is a characteristic example of the Berlin post-Schinkel ornate façade that Messel set himself to explode. It is interesting to compare with these two new buildings the two (also in the Unter den Linden) of the Messel period—his own Schulte's Picture Gallery, one of his best works, and the Hotel Adlon, by Ganse and Liebnitz, one of the extremest examples of the flat treatment.

Lastly, there is the Admiral's Café in the Friedrich-strasse, by Schweitzer, another pupil of Messel's. The front of this building, which contains an ice palace, a theatre, and a Russo-Roman bath, in addition to the

café, shows a freakish use of attenuated Greek Doric columns, carrying a cornice in which architrave and frieze are reduced to what is little more than a bed-mould. This latter objectionable feature figures in Messel's designs for the additions to the Neues Museum, which is to house the Pergamon frieze. It is to be hoped, by the way, that when at length this new museum is built considerable liberties will be taken with Messel's project, which contain several features incompatible with the neighbouring work of Schinkel, and even Stüler; for example, steep pitched pediments verging on Early Renaissance gables, and, in place of antæ, square fluted Greek Doric pilasters. One feels sure that Messel, had he lived, would have modified the full-sized model at present set up on the Museum island. But, to return to the Admiral's Café, which shows the influence of this less sane work of Messel, the space between the columns is divided up into panels, after the manner of timber framing, by bands of rough stone, the panels themselves consisting of arabesques, medallions, and low reliefs, very delicately executed. The projecting balconies on the ground floor are carried by Ionic bronze columns, and quaint brackets from the face of the Doric columns support lamps. After all, it is a café—and other things—and its freakishness is intentional.

These few examples will serve perhaps to give some idea of the trend of modern Berlin architecture, and the same movement is apparent elsewhere—the Georgs-palast restaurant in Hanover, though by a local architect, might be the work of one of Messel's pupils. Significant also has been the recent republication of Schinkel's works, and one feels that this is only the beginning of a period when German architecture will, after the lapse of sixty years or more, again become the only serious Continental rival of French.

SUBURBAN HOUSE COMPETITION.

EIGHTY-NINE designs have been submitted in our competition for elevations of a semi-detached suburban house based on the plans of the scheme placed first in the former competition. We hope to announce the award in the course of the present month.

OUR PLATES.

House at Burgh Heath, Surrey.

THE house illustrated on our Centre Plate this week is being built at Burgh Heath, Surrey, on a site overlooking the downs. Flints have been used for the general external facing on a backing of brickwork, the flints having been largely obtained from the chalk during the excavations for the foundations. The stonework in window and door architraves, quoins, strings, cornices, and chimneys is Bath, and the sloping roofs are covered with green Westmorland slates.

New Bank, Duisberg.

This building, illustrated on page 52, is a good example of modern German architecture. Its significance is best understood by referring to the article on German architecture on page 55 of this issue.

Shop Front, Rue de la Paix, Paris.

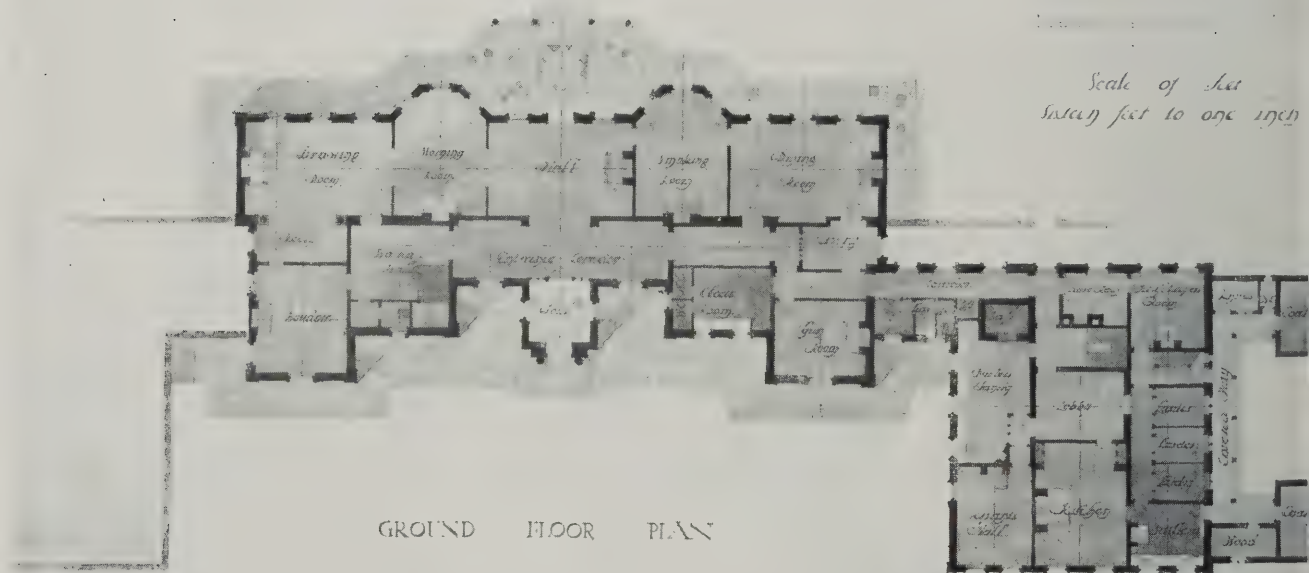
The Rue de la Paix offers more examples of delightful shop fronts than any other street in Paris, and the example which we illustrate on pages 65-67 is one of the best of the series. It is carried out in rich yellow marble with bronze enrichments.

New Royal College of Science, Dublin.

These buildings have recently been erected on a fine site at the rear of Merrion Street, adjoining Leinster Lawn, the National Museum and Library, and are to accommodate the Royal College of Science, previously



NORTH ELEVATION



GROUND FLOOR PLAN

HOUSE AT BURGH HEATH, SURREY. ER

(Royal Academy)



SOUTH ELEVATION



FIRST FLOOR PLAN

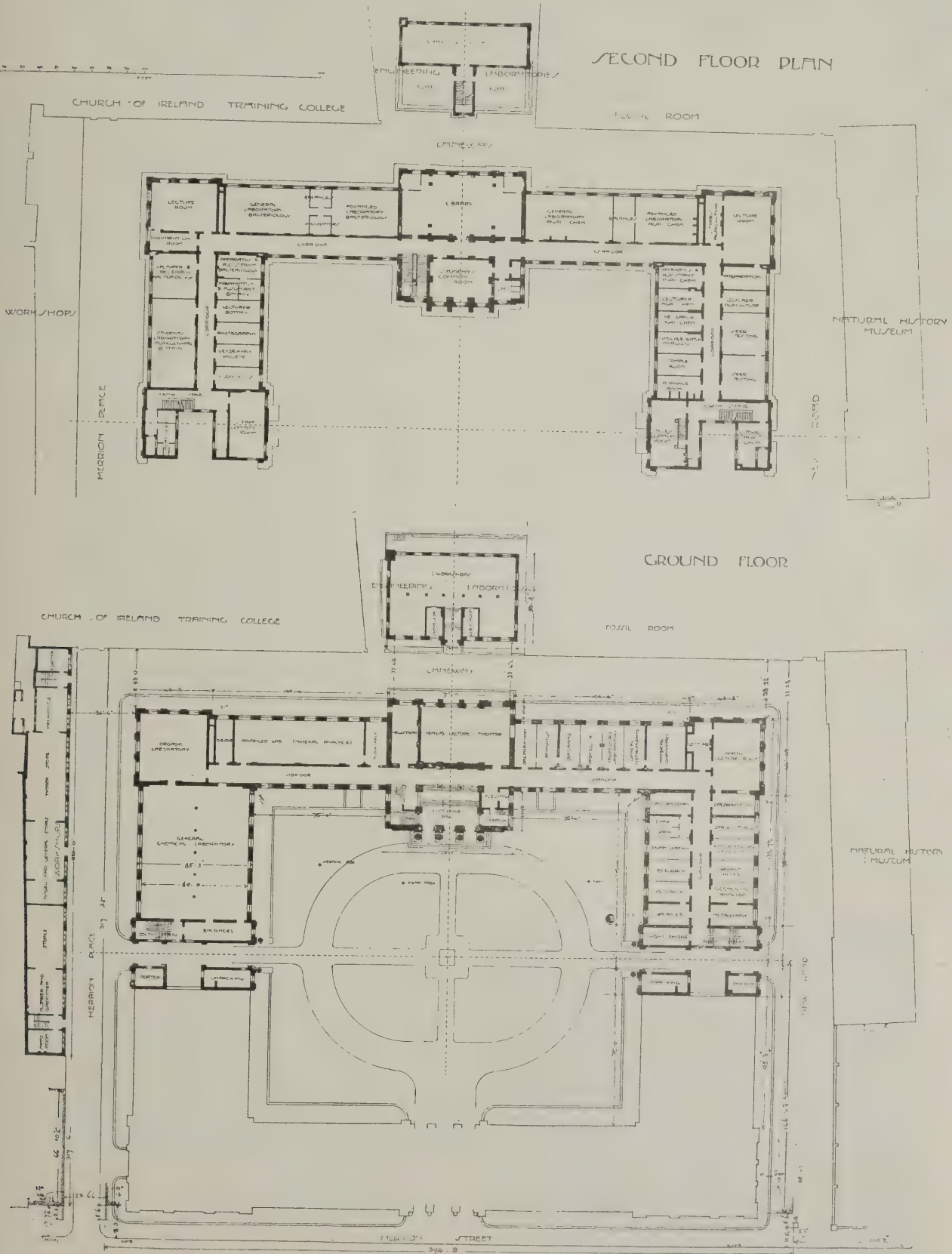
*Original Design 1841
by
J. Raymond Laidley
London 1841*

NEWTON, A.R.A., F.R.I.B.A., ARCHITECT.

(Edition, 1913.)

situated in St. Stephen's Green. The elevations are carried out in Portland stone and Irish granite. The principal entrance is in the quadrangle, with the main staircase, a large lecture theatre, with library over, and students' common-rooms. Applied physics and electrical engineering laboratories are housed on the lower ground floor, while on the ground floor are the chemistry laboratory and a general laboratory, 75 ft. by 60 ft. by 30 ft. high. Botany, geology, mineralogy, and

mathematics are accommodated on the first floor. The whole of the second floor is occupied by agriculture and its various branches, including chemistry, bacteriology, botany, economics, veterinary hygiene, and photography. The quadrangle is now being completed by the erection of new Government offices towards Merrion Street, from designs by the architects, Sir Aston Webb, C.B., R.A., and Sir T. Manly Deane, A.R.H.A.



NEW ROYAL COLLEGE OF SCIENCE, DUBLIN.

SIR ASTON WEBB, C.B., R.A., AND SIR THOMAS MANLY DEANE, A.R.H.A., ASSOCIATED ARCHITECTS.

HERE AND THERE.

THE recent glories of Henley (or so much of them as were observable under the grey sky of an October July) serve to set one thinking of domestic architecture as seen on the banks of the Thames. In theory, the riverside house offers abundant opportunity for delightful results. In the mind's eye one sees a well-kept lawn with little garden houses at the water's edge, and at the back a house just sufficiently observant of the architectural proprieties to put us at our ease, but displaying a certain air of pleasant exuberance to remind us that this is a place where we can forget urban formalities. The reality, however, is very different. We may pass in review hundreds of river houses, many of them built and maintained without restriction of cost, but very few indeed are even mildly commendable. And the chief reason is clearly that architect and owner have failed to recognise how essential it is that a river house shall be simple in its parts and in its embellishment. The brickiness, barge-boardiness and bay-windowiness of suburbandom is not the model to follow; nevertheless the majority of the houses on the banks of the Thames do so, and, consequently, we cannot be other than disappointed. With many things there is a limit which cannot be exceeded with advantage; it is so with houses and gardens—one cannot keep adding and altering without almost certainly spoiling them. In the case of river houses this is especially so. The architect, in the first place, has probably set up a rather flamboyant design, and the owner, with more money than taste, has coruscated it all over with decoration, both architectural and floral. In two or three instances that I call to mind Victorian Gothic has even been essayed on quite a huge scale. A few, however, of an older type, give glimpses of happier possibilities. Round about Marlow are several belonging to the late eighteenth and early nineteenth centuries, and on the finest of all the Thames reaches is Bisham Abbey, as beautiful a piece of mellowed brickwork as one could wish to see. Further up the river, too, is Culham Court, a great square Georgian mansion which, if perhaps a trifle dull, is nevertheless infinitely preferable to the florid string of houses that line the Thames at Maidenhead. The moral is obvious.

I make a small change this week by including an illustration among these discursive paragraphs, the reason being that no description can give the impression which the New Corbel conveys. This is one of a series in the Woolworth Building, the newest and highest skyscraper in New York. It shows the archi-



tect, Mr. Cass Gilbert, clutching a model of his work. How he is supporting himself while thus engaged is not apparent, but American architects do all sorts of wonderful things, and this seems to be merely another accomplishment. Certainly the muscles of his arm are modelled in what may be described as "a bold vigorous manner," and there is a modern rendering of trousers that is distinctly attractive. Mr. Woolworth and others concerned in the construction of the huge building are similarly translated into corbels. In the carving on many an old Gothic fabric you may see a portrait of abbot-builder or craftsman quaintly rendered, so that the inclusion of similar features in the Woolworth Building is merely a modern interpretation of a mediæval practice. Their Majesties the King and Queen, in company with less distinguished personages, poke their heads through the cornice of a building in Knightsbridge which was completed a few years ago, and the central one of a trio of cherubs' heads that adorn a certain new reredos is no other than the architect's daughter—has, in fact, her name cut at the back. Mr. Cass Gilbert and his associates, then, may well take up their positions in the corridor of the Woolworth Building. If they do nothing else, they will undoubtedly be objects of amusing interest to the people who are waiting to go up in the lifts.

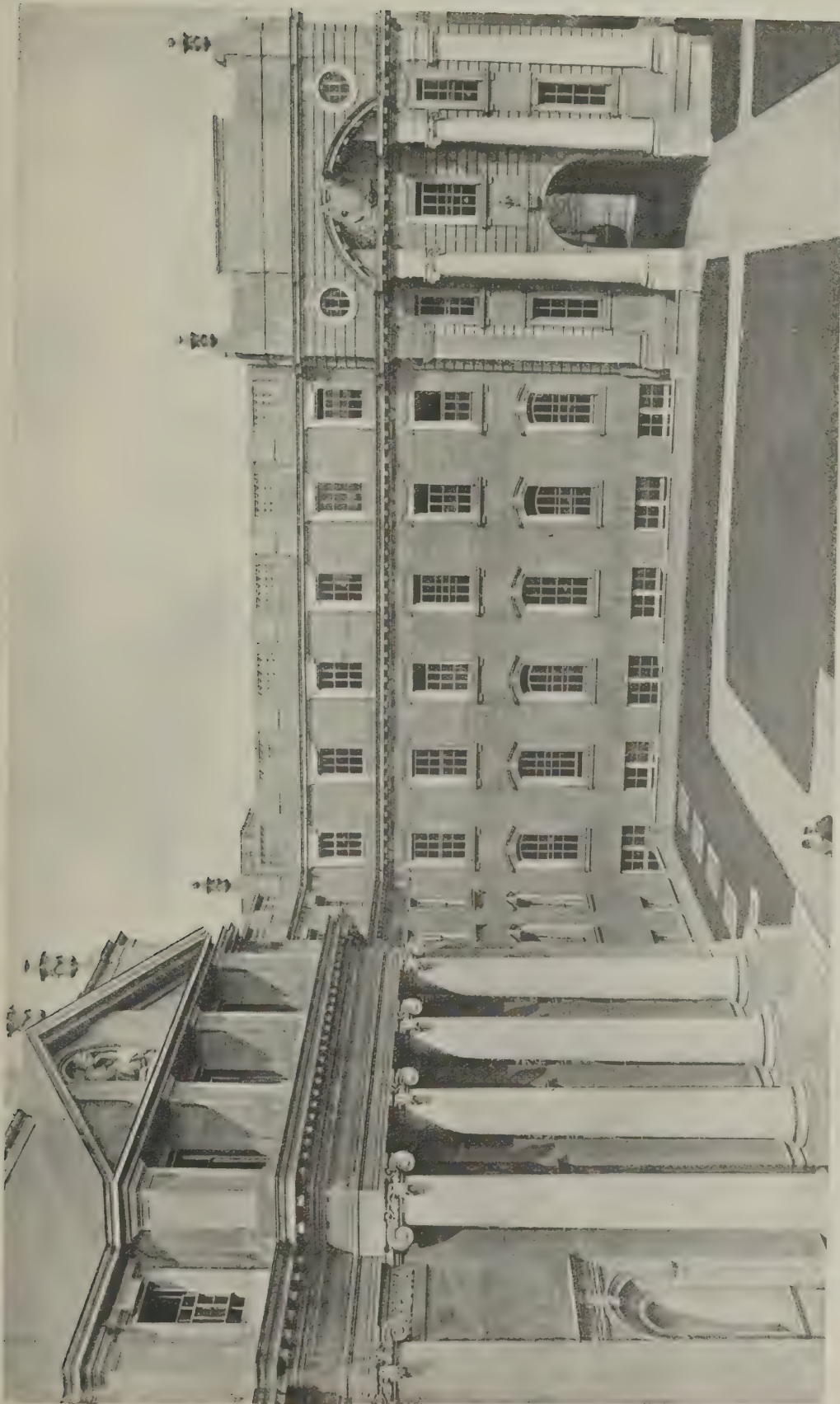
In the current issue of the "Architectural Association Journal" I notice an enlivening comment on the human failing for putting things off till the last moment, as exemplified in the case of the competition for new municipal buildings at Devonport. The conditions stated that designs were to be delivered by midday on Saturday, June 14th. I was not present at Paddington Station on Friday, June 13th, at midnight, but an inspired description of the scene is to hand. The "Architectural Association Journal" says: "The architects of London seemed to be present *en masse*, and after handing over their precious packages of strainers to the railway company, gathered in the refreshment room to quench the bottomless thirst of many hours of overtime in the bubbling beverages to be procured. Optimists to the last, they entrust three months' work to the railway company, and the last possible train, and return to pick up the threads of the routine of a practice that has probably been somewhat neglected for the last few days. One wondered why they do it! But, win or lose, the game is worth the candle without doubt, especially for us young enthusiasts!" One must indeed, have enthusiasm when competitions are concerned, otherwise there would be nothing to buoy one up when the award is announced. At this moment I recall to mind the face of a certain well-known architect who had worked for several months on a big competition, and had given up his summer holiday to the laborious affair—without success. But while things remain as they are the big plums which an outsider has the opportunity of getting through the medium of a competition will continue to draw plenty of clamorous architects, and these also, according to the law of procrastination, will continue to send in their designs at the last moment. They always have and they always will. Did not the bulk of the designs in the suburban house competition arrive on the last day? And who has had anything to do with the Academy that does not know what a busy place is that little cobbled passage to the vaults on the evening of sending-in day—right up to the last minute before ten o'clock. It is no use talking, or even making good resolutions, there is an overwhelming force at work in this matter, and the last moment of the last day will be the favoured time.

UBIQUE.



NEW ROYAL COLLEGE OF SCIENCE, DUBLIN: ENTRANCE BLOCK.
SIR ASTON WEBB, C.B., R.A., AND SIR THOMAS MANLY DEANE, A.R.H.A., ASSOCIATED ARCHITECTS.
(See page 58.)

THE
UNIVERSITY OF ILLINOIS.



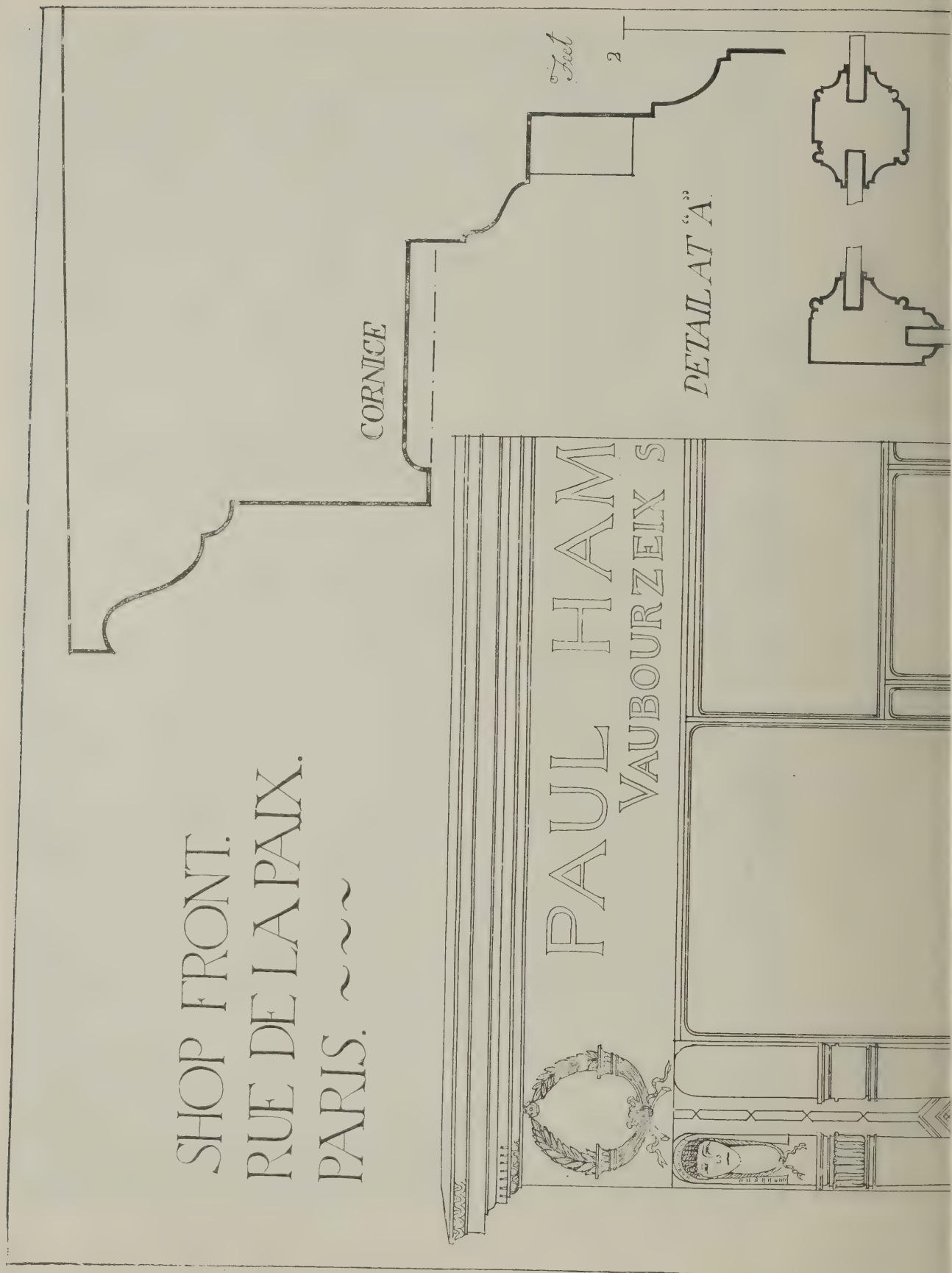
NEW ROYAL COLLEGE OF SCIENCE, DUBLIN: VIEW LOOKING ACROSS QUADRANGLE.
SIR ASTON WEBB, C.B., R.A., AND SIR THOMAS MANLY DEANE, A.R.H.A., ASSOCIATED ARCHITECTS.

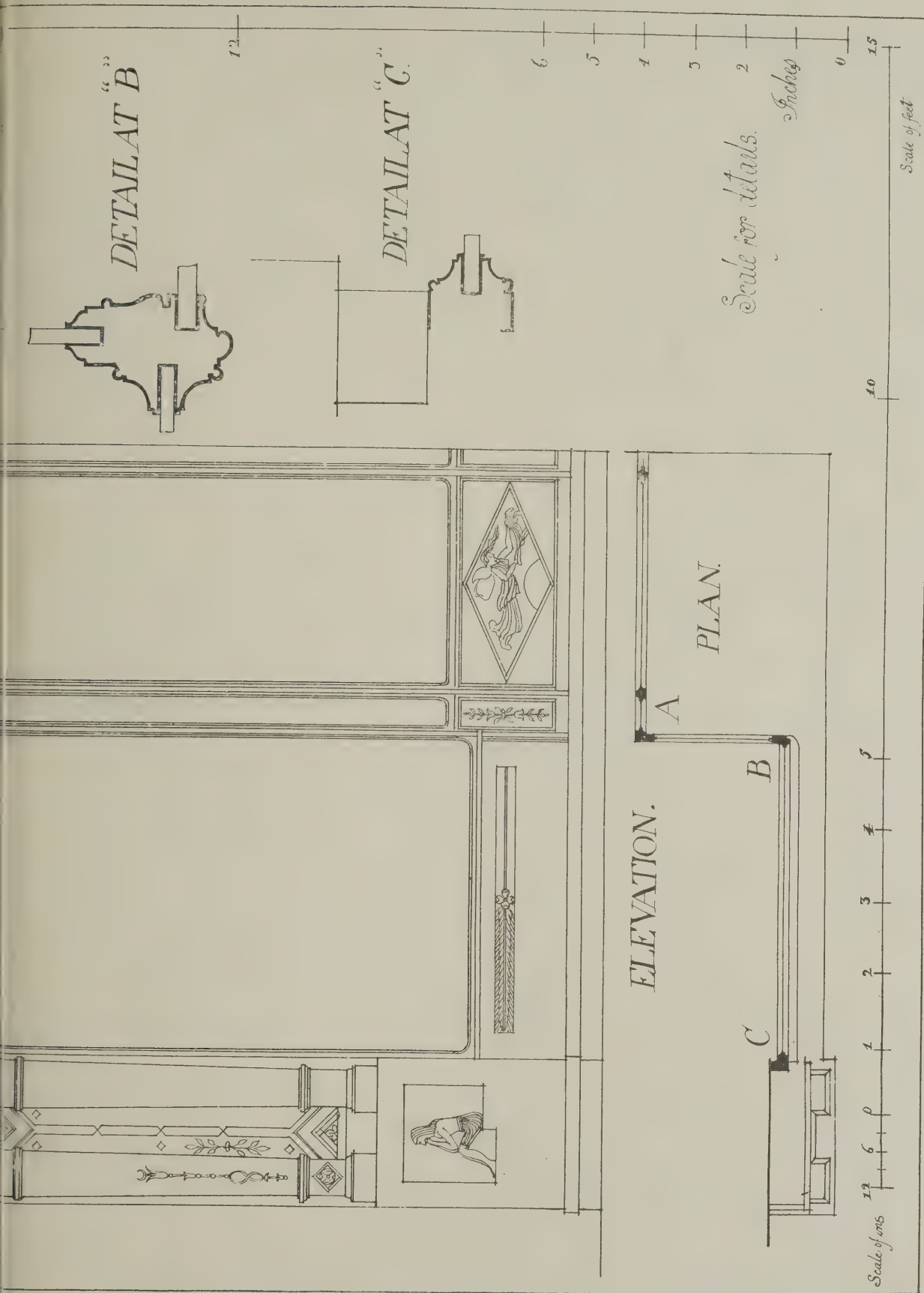
(See page 58)



SHOP FRONT, RUE DE LA PAIX, PARIS. G. MORICE, ARCHITECT.

(See page 58.)





G. MORICE, ARCHITECT. DRAWN BY BERNARD R. PENDEKEL-BRODHURST.

(See page 58.)

IN PARLIAMENT.

(By Our Press Gallery Representative.)

The New Delhi.

In the House of Commons Sir J. D. Rees asked the Under Secretary for India whether Parliament could with advantage, and in accordance with precedent, interfere with the discretion of the Government of India as regards the building of New Delhi, and if not whether the Secretary of State would abstain from making references to that Government which gave an impression that public opinion in this country concerned itself in any way with the style of architecture to be adopted.

Mr. Montagu, Under Secretary for India, said the House was the best judge of the limits of profitable action on its part with regard to the building of New Delhi and other matters. The Secretary of State was not aware of any act of his which might give rise to the impression suggested in the last part of the question.

Mr. King asked the Under Secretary whether he could state the exact position and powers of Sir Swinton Jacob as architectural adviser for the New Delhi; whether the letter of his appointment could be made public; and whether he was furnishing any of the designs or plans for any new buildings.

Mr. Montagu said Sir Swinton Jacob had been associated with the architects as adviser on questions of Indian architecture, materials, and the like. He would not furnish designs or plans. It was not proposed to publish the letter of his appointment.

Mr. King asked the Under Secretary whether he would consult those architects and officials of the Public Works Department who had been engaged in the repair and maintenance of historic Indian buildings, so that their experience might be made available in the construction and style of building the New Delhi.

Mr. Montagu said the Secretary of State considered that in the association of Sir Swinton Jacob with the architects sufficient provision had been made for making Indian experiences available.

Mr. King asked regarding the proposed terminal station at the New Delhi, what would be the cost of the work; whether the proposal for a non-terminal station, as suggested by other authorities, was laid before the committee; and whether it was intended to make an early start to carry out the recommended terminus.

Mr. Montagu said the scheme recommended by the committee was suggested by the Railway Board, the highest authority on railway arrangements in India. The Secretary of State had no information as to the probable cost of the work or as to when it would be commenced.

Mr. King asked whether any notice had been, or would be, taken, of the expressed view of the Government of India, in transmitting the report of the Town-Planning Committee, that very careful examination would be required before the execution of work contemplated; whether inquiry had been made as to the subjects to which this qualification applied; and whether, in view of this warning, the Secretary of State would delay the final appointment of architects and the final approval of plans now being designed.

Mr. Montagu said the Secretary of State had taken note of the conclusion of the Government of India that the town planning report would be a very useful guide to them in their further operations, but that many details would require careful

examination. He did not consider that any useful object would be served by delaying the appointment of the architects.

Mr. Montagu informed Mr. King that the Imperial Delhi Committee appointed to carry out the construction of the New Delhi consists of Mr. W. M. Hailey, C.I.E., Chief Commissioner of Delhi (President); Mr. H. G. Stokes, C.I.E., previously Deputy-Secretary to the Government of India in the Financial Department (Financial Member); Mr. H. T. Keeling, A.M.I.C.E., previously Superintending Engineer, Madras Public Works Department (Engineer Member); and Mr. W. H. Nicholls, previously Consulting Architect to the Government of Madras, after service in the Archaeological Department of the Government of India (Architect Member).

Ancient Monuments.

The Ancient Monuments Consolidation and Amendment Bill has now passed through the House of Lords, and will shortly be considered in the House of Commons if the Government can find time. It is not by any means certain that the Bill will become law this Session.

New Staircase at the House of Commons.

A new staircase has been opened in the House of Commons leading from the dining-room lobby to the Terrace. According to a statement made by Mr. Benn, the decoration of the new staircase has largely been carried out with the old wood carving which had been in store. The central panel is at present occupied by tapestry lent for the remainder of this session by the Victoria and Albert Museum. It is intended ultimately to fill this panel with a picture by Mr. Seymour Lucas representing the flight of the five members. A generous promise to present this painting has been made by the member for West Wolverhampton, Mr. A. F. Bird. A new lift will be constructed in the same part of the House during the recess.

OBITUARY.

Mr. William Brown.

The death is announced at Liverpool, at the age of sixty-one, of Mr. William Brown, head of the firm of Messrs. William Brown and Sons, builders, Salford. Amongst the large undertakings which the firm carried out were the erection of the Midland Hotel, the Mersey Docks and Harbour Board Buildings, Liverpool, the Leicester Railway Station, Haydock and Hooton racecourses. It received over £3,000,000 from the Midland Railway Company for work done during twenty-five years.

Mr. James Marriott.

The death took place at Coventry on June 22nd, at the age of ninety-five, of Alderman James Marriott, who was formerly head of one of the largest firms of builders and contractors in England. He entered public life more than fifty years ago, and was Mayor of Coventry in 1855 and 1856. Mr. Marriott was one of the group who started the first cycle factory in Coventry, and thereby provided a substitute for the ribbon industry, which had been ruined by the French Treaty. Along with Lord Leigh, he founded the Leigh Mills Company.

Mr. James Vine, of Eastbourne.

Mr. James Vine, of The Elms, Elm Avenue, Eastbourne, who died recently at the age of sixty-five, after a short illness, was a native of Eastbourne, and was

a very successful business man. The Elms Estate, the Greys, Old Town, and the Anderida Estate, Pevensey, were all developed by him, while, in addition, he was responsible for the erection of many houses in other districts.

Mr. G. W. Keeling, M.Inst.C.E.

One of the best-known engineers of the West of England, Mr. George William Keeling, J.P., M.Inst.C.E., has died suddenly at his Cheltenham residence at the age of seventy-four. His name will be inseparably linked with the railway development of the Forest of Dean, for which purpose the great Severn Bridge was required. Mr. G. W. Keeling was appointed joint engineer with Mr. G. W. Owen, and the foundation-stone of the bridge was laid on June 3, 1875, and it was opened in 1879. It is 1,320 yards long, 70 ft. above high-water mark, with two spans of 327 ft. and others of 170 ft. It cost about £200,000, and the railway approaches thereto about £90,000. Mr. Keeling was afterwards appointed superintendent engineer of the Gloucester and Hereford Division of the Great Western Railway system, until he retired on superannuation in 1904. He also held other important engineering appointments.

SANITARY INSPECTORS' ASSOCIATION OF SCOTLAND.

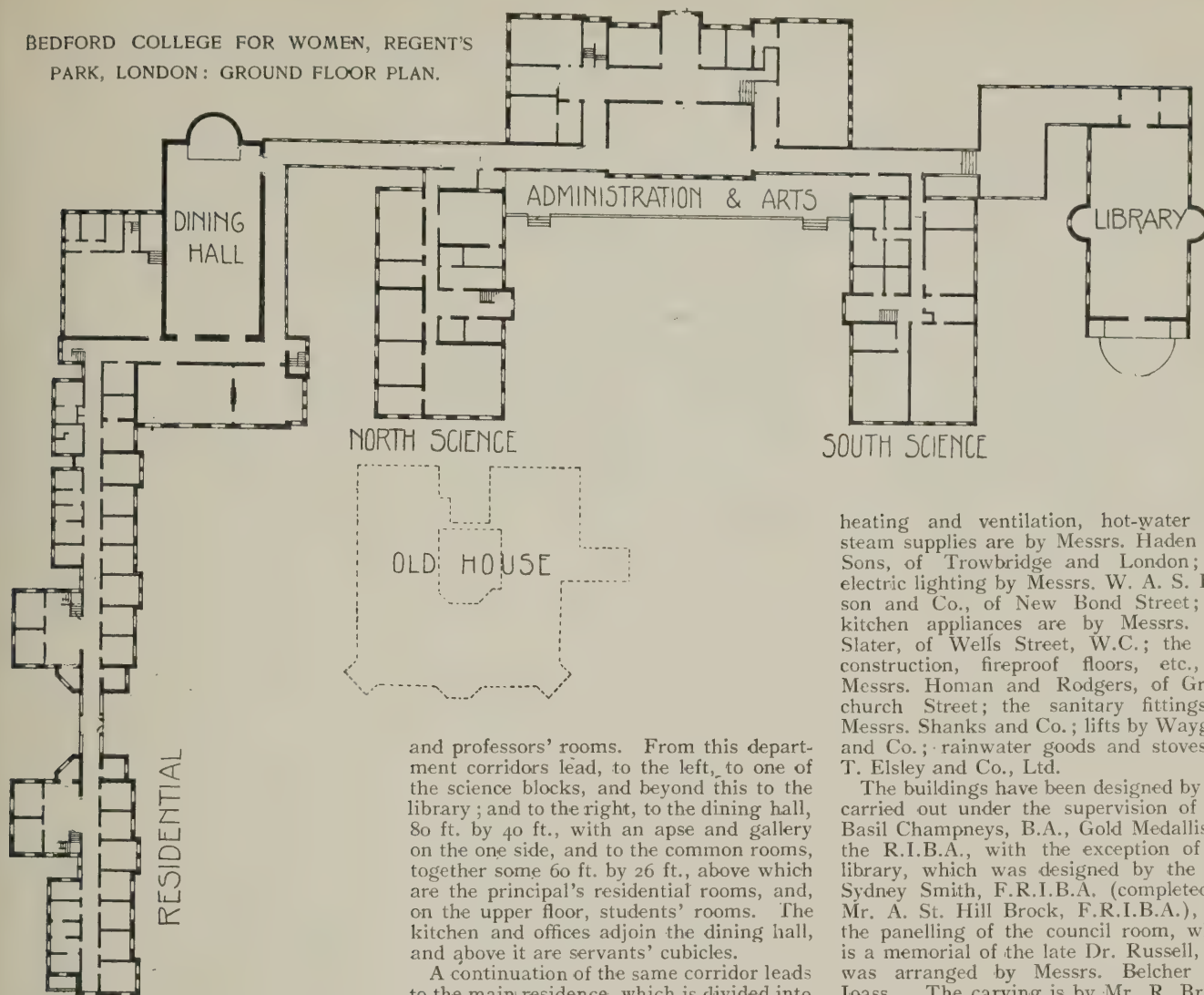
The members and delegates to the annual congress of the Sanitary Inspectors' Association of Scotland, which has just been held in Greenock, visited Port-Glasgow on the invitation of the Town Council. The members and delegates were conducted over the Bay Area Housing Scheme, which was completed last year. The scheme embraces 46 tenements, accommodating 400 families, and 44 shops, erected at a cost of about £100,000. All the houses are constructed on the balcony system, and are of one, two, three, and four apartments. The party took a deep interest in the inspection, as the reconstruction of the Bay Area is one of the largest ever carried out in Scotland. The members of the Association also visited the old houses in the centre of the town and the burgh destructor. The company were afterwards entertained by the Town Council in the Star Hotel—Provost Fyfe presiding. The annual meeting of the Association was held in the Greenock Town Hall, and was followed by the annual dinner, which was held in the Tontine Hotel.

ROYAL SOCIETY OF ARTS.

Award of Silver Medals.

From the list of awards of the silver medal of the Royal Society of Arts, for papers read during the session 1912-13, we extract the following:—At the ordinary meetings: Mr. E. Russell Burdon, "The Development of Research Work in Forest Products"; Mr. Frank Bailey, M.Inst.C.E., "Electric Supply in London"; Mr. Walter C. Hancock, F.I.C., "The Physical Properties of Clay"; Mr. H. V. Lanchester, F.R.I.B.A., "The Design and Architectural Treatment of the Shop." In the Indian Section: Sir Bradford Leslie, M.Inst.C.E., "Delhi, the Metropolis of India"; Sir John Benton, "Irrigation Works in India." In the Colonial Section: Mr. W. H. Warren, LL.D., M.Inst.C.E., "The Hardwood Timbers of New South Wales."

BEDFORD COLLEGE FOR WOMEN, REGENT'S PARK, LONDON: GROUND FLOOR PLAN.



BEDFORD COLLEGE FOR WOMEN.

Last week, on the occasion of the opening of this college by Her Majesty the Queen, we gave views of the main entrance, the entrance to the residential buildings, and the Lady Tate Library, with two plans. We now give an additional plan, with further description of the buildings. They have been erected on the site of South Villa, in the Inner Circle of Regent's Park, a portion of which site was cut off and added to the park in the spring of the present year. They consist of six main blocks, the first of which contains the rooms for administrative and arts, the second and third of science laboratories and lecture-rooms, the former for physics, physiology, and chemistry, the latter for geology, botany, zoology, and psychology; the fourth contains a dining hall, kitchen, and offices, common rooms, principal's residence, some students' rooms, and cubicles for servants; the fifth a residence for some eighty-five students and staff; and the sixth a library, the gift of Lady Tate. Corridors connect all these departments.

The main entrance is from the Inner Circle Road, opposite the entrance to the Botanic Gardens, where a semi-circular drive gives access to the administrative and arts block, which contains an assembly hall, 60 ft. by 30 ft., with gallery, cloak-rooms, council chamber, principal's and secretary's offices, staff common rooms, and other offices for staff and inter-collegiate students, and a number of lecture

and professors' rooms. From this department corridors lead, to the left, to one of the science blocks, and beyond this to the library; and to the right, to the dining hall, 80 ft. by 40 ft., with an apse and gallery on the one side, and to the common rooms, together some 60 ft. by 26 ft., above which are the principal's residential rooms, and, on the upper floor, students' rooms. The kitchen and offices adjoin the dining hall, and above it are servants' cubicles.

A continuation of the same corridor leads to the main residence, which is divided into two parts by a corridor on the ground floor and a loggia and gallery on the upper floors. Each of these blocks has its own entrance, and the approach to these is by a separate drive from the Inner Circle.

The residential portion consists of bed-sitting rooms with the necessary offices, and two sick-rooms, which can be completely isolated and have a separate entrance.

The style of the building is English Renaissance; the material is brick throughout, with Kendal's (of Radlett) grey brick facings, having Lawrence's (of Bracknell) red-brick rusticated quoins and rubbed and gauged brick mouldings. The roofing tiles are from Ramsey, and those in the flatter slopes are Bridgwater Roman tiles, Major's patent interlocking double Roman pattern tiles covering the flat slopes. The council chamber, assembly hall, dining hall, and common rooms are panelled in oak. The fittings to the science blocks were made by the contractor.

The hot-water warming apparatus, hot-water supply, and steam for cooking are all supplied from one central chamber in the basement of the administrative block.

The ventilation is by fresh air inlets in connection with the radiators, and the extraction is obtained by air-flues in the thickness of the walls communicating with tanks to which rotary fans worked by electricity are attached.

The lighting throughout is electricity.

In connection with the work the following names should be mentioned: Contractor, Mr. Thos. Rowbotham, of Birmingham; clerk of works, Mr. Geo. J. Jones; general foreman, Mr. T. Hayes. The

heating and ventilation, hot-water and steam supplies are by Messrs. Haden and Sons, of Trowbridge and London; the electric lighting by Messrs. W. A. S. Benson and Co., of New Bond Street; the kitchen appliances are by Messrs. Jas. Slater, of Wells Street, W.C.; the iron construction, fireproof floors, etc., by Messrs. Homan and Rodgers, of Gracechurch Street; the sanitary fittings by Messrs. Shanks and Co.; lifts by Waygood and Co.; rainwater goods and stoves by T. Elsley and Co., Ltd.

The buildings have been designed by and carried out under the supervision of Mr. Basil Champneys, B.A., Gold Medallist of the R.I.B.A., with the exception of the library, which was designed by the late Sydney Smith, F.R.I.B.A. (completed by Mr. A. St. Hill Brock, F.R.I.B.A.), and the panelling of the council room, which is a memorial of the late Dr. Russell, and was arranged by Messrs. Belcher and Joass. The carving is by Mr. R. Bridgman, of Lichfield. The surveyors are Messrs. Hicks and Lynam, 3-7, Southampton Street, Strand.

The buildings were commenced on August 21st, 1911. Owing to the recent strike of plasterers, it was impossible to complete by the day appointed for the opening, though the residence and some other parts of the buildings have been in use for some considerable time. Also an increase of numbers has made it necessary to retain for the present South Villa, which it was intended to pull down, and while this stands the general composition of the group of buildings cannot be adequately realised.

The new buildings of Bedford College nearly occupy the same site as the old out-buildings, conservatories, etc., of South Villa. This being so it was unnecessary to clear away any of the trees, and consequently the new buildings are not unduly conspicuous from the public park. This applies particularly to the two science blocks and the arts block. A large basement of one of the old buildings has been retained in the new building.

In the excavation of foundations for the residence many old brick walls, cesspools, etc., were unearthed, and also the bed of the old pond of some building prior to South Villa. The view of the garden side of Bedford College from the public park becomes possible only by reason of the new public path by the lake.

Under the South Villa lease the whole of the bank of the lake from Clarence Bridge to York Bridge was private land. This, comprising about 1½ acres, has now been added to the park.

MOTOR NOTES FOR BUILDERS AND CONTRACTORS.

COMMERCIAL CARS ON CONTRACT WORK.

CONTRACTORS nearly always place their mixers, mortar boxes, bricks, etc., at the nearest point to the workmen to expedite delivery of material to the men using it. These locations are, when the buildings are first started, frequently at the bottom of the excavations, where the vehicles sink into the soft ground nearly to the hub. This condition has long been a grievance to the team owner. The contractor seldom gives him any consideration, and if he complains there are usually plenty of others who will risk their horses' limbs and necks to secure the job.

While this condition is very difficult for horses, it is doubly so for motor trucks, which must drive their loads instead of pulling them. Although a contractor will sometimes plank a roadway, from the bank to the bottom of the cellar, for the teams, it will seldom be of planking strong enough to support motor trucks, nor will provision be made to improve the roadway to the unloading point.

Discharging the Load.

Perhaps the cement mixers have been located against the bank of the excavation, and the demand is made by the contractor to keep a considerable amount of rock, slag, etc., always ahead of the work. The space allotted to the material mentioned may be only of 7 ft. by 15 ft. to 20 ft., and from 15 to 18 tons of material must be kept ahead of the mixer at all times. The only way for the teams to get to the place selected may be a narrow driveway alongside the excavation and close to the buildings on the other side, with no passage around the material pile. The teamster's wagon has usually a bottom discharge, and he has to drive on top of the material pile to discharge his load, then unhitch the horses and hitch them to the rear end, and with a man to steady the pole, draw the wagon back off the pile. This procedure becomes necessary because the space allowed for the pile necessitates its being built high and with no way out except to return over the driveway in. The horses must be unhitched because they would balk themselves badly, even if they were able to secure a foothold while backing off the pile, which is doubtful.

The motor truck, under such conditions, has a distinct advantage over the horse vehicle, inasmuch as it may be backed to the pile, and, being equipped with a power elevating, dumping, rear-discharge body, may discharge the load directly on top of the pile. The truck may then drive out without delay, the time necessary to hoist the load and discharge it being only $2\frac{1}{2}$ to $3\frac{1}{2}$ minutes. With the motor furnishing the hoisting power one man only is necessary to perform the operation. This is approximately one-third the time necessary with a horse vehicle and two men; besides, the five-ton motor truck will carry to the pile $3\frac{1}{2}$ cu. yd. of crushed stone, while a team of horses will deliver but 1 to 2 cu. yd. per load and will travel only one-third as fast as the motor truck.

Hard on the Horses.

Another condition frequently encountered is one requiring that the material be dumped on a pile nearly as high as the top of a wagon body and at one side of the roadway, where insufficient room is obtainable for backing to the pile, and it is necessary for horses to climb over the pile and discharge the load, after which

they may continue out by another roadway. While this condition presents no serious difficulties, it does call for hard pulls upon the horses, who, as likely as not, will have broken stones for a footing, which means taking chances of injury by calking, strained ligaments, and many other evils.

Here again the motor truck has the advantage, in that it can pull up alongside the pile, elevate the power elevating side-discharge body with which the truck is equipped, and discharge its load on top of the pile. This operation requires but $1\frac{1}{2}$ minutes to elevate the body to the required height, and another equal amount of time to discharge its contents. In thirty seconds the return of the body to its set position is accomplished, and the truck proceeds on its way for another load.

Unloading the Motor Truck.

The only material for which protection against rain and snow is usually provided is cement. The shelter most often is in a place inaccessible to teams, necessitating much loss of time in carrying the bags to it from the wagon. This is a condition which could often be obviated without inconvenience to the contractor if he would consider the truck man's obstacles and select a place "get-at-able" for motor trucks.

When the foundation for a building has been completed, the construction material is usually hauled into the structure over a temporary floor laid for this purpose, which answers for general use also. As the structure from the street to the beams of the building is temporary, this floor is usually strong enough for horse-drawn vehicles, and would not sustain the weight of motor trucks, but with little extra expense it could be made serviceable for trucks. There are also numerous instances where steel and other heavy material must be unloaded from trucks at the side of the building by hand, when the derrick boom could be used for this purpose without affecting the other work, and at the same time place the material in a spot convenient for the workmen. This would cut down the time and number of men necessary to unload, and would undoubtedly enable the truck owner to deliver at a lower rate per ton.

Faster Delivery.

Obviously, by allowing motor trucks to run through buildings being erected, much faster delivery service can be obtained than is necessary for the truck to go around several blocks to reach a place in the rear of the building. There are many similar conditions (which the builder and contractor could improve without any appreciable expense to himself) that would materially assist the truck owner in making more rapid deliveries. Co-operation between the truck operator and the builder will result in benefit to all concerned.

Capacity of Truck and Type of Body.

The truck owner who undertakes to serve this trade will be confronted with the problem of what capacity of truck is best suited to the requirements of the business, and also of the type of body that will best answer the purposes. As many tons of material are used, even in small buildings, it is advisable to carry as large a load as possible on each trip, and consequently vehicles of large carrying capacity are best

employed. Trucks of five tons capacity are usually employed to the best advantage. While the larger trucks could sometimes be used to good advantage, the combined weight of the truck and load is so great that there is danger of breaking through culverts and bridges, since the road-builders of the past did not build for vehicles of so great weight, and even at the present day many culverts and small bridges are being constructed too light for $7\frac{1}{2}$ and 10-ton vehicles.

The bodies best adapted for the demands of this line are of the dumping type, with an angle sufficiently steep to allow wet sand to discharge freely, as this material requires the sharpest angle of any material used for building, excepting asphalt. They should be provided with suitable mechanism for elevating the body to a height sufficient to discharge the material on top of piles such as described.

Discharge to Right, Left, or Rear.

The motor should be utilised to furnish the elevating power, and, as the situations encountered demand both side and rear discharge, the bodies should be constructed so that discharge to right, left, or rear can be made. The body builders have not given this subject the consideration which it demands, and the writer knows of no body manufacturer who has made a standard design applicable to all the demands above mentioned.

It is also usually necessary to deliver cement in bags of 100 lb. each, and for this purpose a platform body is preferable. This body should be constructed low, with wheel housings over the rear wheels, to allow for wheel clearance when the springs are deflected and with fenders to prevent mud from splashing the load. A tarpaulin may be secured to supports over the load in stormy weather and simply slid forward, or entirely removed, at will.

The advantage of the low platform is apparent when unloading, as the men can unload the bags from the ground until most of the load has been taken off, whereas much climbing upon the body and consequent loss of time will result if the high body is employed. The inconvenience of high platforms when loading the bags from supply depôt and freight cars, which is claimed by some as an advantage, is overcome by the time saved in unloading from a low body. The low body has not yet gained favour among the majority, who claim that the space taken up by the wheel housings over the rear wheels is not used to good advantage, owing to the space taken up from the area of the platform which cannot be used for loads. There are some lines of service which demand a flush platform, but such cases are in the minority, and to the man who has used both types of bodies there is no question as to the advantages of the low body in the general line of hauling encountered.

This platform body should be provided with removable sides and removable front and rear-end gates, with sideboards extending entirely around the body, and should be of sufficient height to permit converting the body into a box type when necessary. There should also be a set of long stakes provided, with slats part way up and chains to prevent spreading apart or unnecessary strain on the stake sockets, which will be found suitable to convert the platform body into a high stake body for hauling light bulky loads, such as lath.

CONCRETE AND STEEL SECTION.

(MONTHLY.)

THE NEW L.C.C. DRAFT REGULATIONS FOR REINFORCED CONCRETE CONSTRUCTION.

IN the Journal for July 2nd, p. 3, we published some critical observations on the new draft regulations which have been printed as a report of the Building Acts Committee of the London County Council. As these regulations, when at length they shall have received the approval of the Local Government Board, will not only control practice in London, but strongly influence it throughout the kingdom, it is important that the proposals shall receive the widest possible publicity, in order that suggestions for improvement may be made before the regulations receive sanction.

The report of the Building Acts Committee of the London County Council is substantially as follows:—

Regulations with respect to the construction of buildings wholly or partly of reinforced concrete.

1.—On 21st November, 1911, the Council, under the authority conferred on it by section 23 of the London County Council (General Powers) Act, 1909, made regulations with respect to the construction of buildings wholly or partly of reinforced concrete, and on 28th November, 1911, the regulations were confirmed. Copies of the regulations were then sent to the Local Government Board for allowance, and the notice of the Council's intention to do so was given to the Royal Institute of British Architects, the Surveyors' Institution, the Institution of Civil Engineers, and the Concrete Institute, as required by the Act. After prolonged negotiations between technical advisers of the Council and the Board, a revised draft of the regulations has been prepared, which regulations follow this report. The alterations made by the Board are somewhat numerous, and owing to the frequent use of italics and brackets throughout the regulations, especially in the formulæ, it is not possible to indicate them by different type. Speaking generally, the alterations are chiefly changes in form only, though in some instances they render the regulations somewhat more onerous than those originally adopted by the Council. Any increase in the standard of stability may evoke criticism, but as the use of reinforced concrete in building work is a modern development, it is in our opinion expedient to accept the modifications made by the Board so that the regulations may speedily come into force and ensure safety in the employment of this method of construction.

If during the next few years experience shows that the regulations may, with advantage, be made less onerous there should be no difficulty in modifying them accordingly.

In addition to the specific notice required by section 23 (4) of the Act to be given to the above-mentioned technical institutions, the Local Government Board desire that, as in the case of by-laws to which section 184 of the Public Health

Act, 1875, applies, notice should be advertised in one or more London newspapers, preferably daily papers, and in one of the technical papers circulating amongst persons professionally or commercially interested or affected. The Board also desires that a copy of the regulations may be deposited for inspection at the offices of the Council for a clear calendar month subsequent to the publication of the advertisements and before the submission of the application to the Board for the allowance of the regulations. We think the Board's desire should be complied with.

Regulations referred to in the foregoing report.

LONDON COUNTY COUNCIL (GENERAL POWERS) ACT, 1909.

REINFORCED CONCRETE CONSTRUCTION.

Sub-headings and marginal notes do not form part of the regulations.

Regulations with respect to the construction of buildings wholly or partly of reinforced concrete and with respect to the use and composition of reinforced concrete in such construction.

Whereas under the provisions of section 23 of the London County Council (General Powers) Act, 1909, the London County Council (therein and hereinafter referred to as "the Council") have power to make regulations with respect to the construction of buildings wholly or partly of reinforced concrete and with respect to the use and composition of reinforced concrete in such construction.

Now therefore in pursuance of the powers conferred upon the Council by the said section the Council do hereby make the following regulations—

PART I.—GENERAL.

1.—The term "reinforced concrete" as occurring in these regulations shall mean concrete which is reinforced by metal so combined therewith that the metal will (a) be sufficient to take up all the direct tensile stresses; (b) assist in the resistance to shear; (c) assist in the resistance to compression where necessary.

2. These regulations shall apply only to the construction of buildings of reinforced concrete in which the loads and stresses are transmitted through each storey to the foundations by a skeleton framework of reinforced concrete or partly by a skeleton framework of reinforced concrete and partly by a party wall or party walls.

3.—The skeleton framework of reinforced concrete of a building together with the party wall or party walls (if any) upon which such framework bears shall be capable of safely and independently sustaining the whole dead load and the superimposed load bearing upon such framework and party wall or party walls, calculated in accordance with the data hereinafter contained.

4.—All floors and staircases within the reinforced concrete framework (together with their enclosing walls) shall be constructed throughout of incombustible materials and be carried upon supports of incombustible materials.

5.—In the case of the erection of a new building of reinforced concrete or the making of any addition or alteration or the carrying out of other work under the provisions of these regulations, the like notice shall be served upon the district surveyor as is required to be served by Part XIII. of the London Building Act, 1894, and such notice shall be accompanied (a) in the case of a new building by plans and sections of sufficient detail to show the construction thereof, together with a copy of the calculations of the loads and stresses to be provided for and particulars of the materials to be used; and should such plans, sections, calculations or particulars as originally furnished be not in sufficient detail, the person depositing the same shall furnish the district surveyor with such further plans, sections, calculations or particulars as may be reasonably necessary for the aforesaid purpose, and (b) in the case of an alteration or addition or other work as aforesaid by such plans, sections, calculations and particulars as may be reasonably necessary.

PART. II.—DATA TO BE USED FOR THE PURPOSES OF THESE REGULATIONS.

Floor and roof loads.

6.—The dead load of a building shall consist of the actual weight of walls, floors, roofs and all other permanent construction comprised in such building.

7.—The superimposed load in respect of a building shall consist of all loads other than the dead load.

8.—In calculating the loads on foundations, pillars, piers, walls, framework, beams and other constructions carrying loads in buildings, the superimposed load on each floor and on the roof shall be estimated as equivalent to the dead load set forth in the regulations following, and numbered nine to twenty-one, both inclusive.

9.—For a floor the estimate shall be made in accordance with the table immediately following—

[In order to save space, the tabular form is not adopted in this reproduction of the data. The figures represent equivalent dead load in pounds per square foot "for a floor intended to be used wholly or principally for the purpose of" the buildings indicated.]

Domestic buildings not hereinafter specified, 70; Asylum wards, common lodging-house bedrooms, hospital wards, hotel bedrooms, workhouse wards, other similar purposes, 84; Counting houses, offices, other similar purposes, 100; Art galleries, chapels, churches, classrooms

in school buildings not being dwelling-houses so used, lecture-rooms, meeting-rooms, music-halls, public assembly, public concert-rooms, public library reading-rooms, retail shops, theatres, workshops, other similar purposes, 112; Ball-rooms, drill-rooms, other similar purposes, similar floors subject to vibration, 150; Book stores at libraries, museums, for every floor in a building of the warehouse class not intended to be used wholly or principally for any of the purposes aforesaid—not less than 224.

10.—For a roof the plane of which inclines upwards at a greater angle than twenty degrees with the horizontal, the superimposed load, which shall for this purpose be deemed to include wind pressure and weight of snow and ice, shall be estimated at twenty-eight pounds per square foot of sloping surface normal to such sloping surface on either side of such roof.

11.—For all other roofs the superimposed load shall be estimated at fifty-six pounds per square foot measured on a horizontal plane.

12.—If the superimposed load on any floor or roof is to exceed that hereinbefore specified for such floor or roof, such greater load shall be provided for.

13.—In the case of any floor intended to be used for a purpose for which a superimposed load is not specified in these regulations, the superimposed load to be carried on such floor shall be provided for.

14.—In cases where a rolling load actuated by mechanical power is to be provided for such rolling load shall be taken as equivalent to a static load 50 per cent. in excess of the actual rolling load.

15.—Partitions and other structures superimposed on floors and roofs may be included in the superimposed load, provided the weight of the partition or other structure per square foot of base does not exceed the permissible load per square foot of floor or roof area. Partitions and other structures of greater weight shall be specially provided for.

16.—For the purpose of calculating the total load to be carried on foundations, pillars and walls in buildings of more than two storeys in height, the superimposed loads for the roof and topmost storey shall be calculated in full, but for the lower storeys a reduction of the superimposed loads shall be allowed as follows:

For the storey next below the topmost storey a reduction of five per cent. of the superimposed load on that storey, as calculated in pursuance of the foregoing regulations shall be allowed; for the next storey ten per cent. of the superimposed load on that storey similarly calculated; and so on by increments of five per cent. per storey till the reduction amounts to 50 per cent. It shall be taken at 50 per cent. per storey for all floors below.

17.—No such reduction as aforesaid shall be allowed in the case of a building of the warehouse class.

Wind pressure.

18.—All buildings shall be so designed as to resist safely a wind pressure in any horizontal direction of not less than twenty pounds per square foot of the whole projected surface normal to the direction of the wind.

19.—All structures or attachments whatsoever in connection with a building,

including towers or other parts which extend above the roof flat or gutter adjoining thereto, shall be so designed as to resist safely a wind pressure in any horizontal direction of not less than forty pounds per square foot of the whole projected surface normal to the direction of the wind.

Weights.

20.—In calculating the working load on beams and slabs allowance shall be made for the weight of the beam or slab itself.

21.—For the purposes of calculation, the weight of reinforced concrete shall be taken at 150 pounds per cubic foot.

Ratio of span to depth of a beam.

22.—For the purpose of determining the ratio of span to depth of a beam, the effective depth of the beam shall be taken.

23.—The effective depth shall be measured from the compressed edge of the constructional concrete to the common centre of gravity of the tensile reinforcement.

24.—The span of a beam shall not exceed twenty times the effective depth of the beam.

25.—The length of a cantilever shall not exceed five times the effective depth at the bearing.

Bending moments.

26.—For the purpose of ascertaining the bending moments on a beam or on a slab the effective span shall be taken.

27.—In the case of non-continuous beams or slabs, the effective span shall be taken as the distance between the main vertical sides of the piers, pillars or walls, plus the effective depth of the beam or slab at the supports, or the span between the centres of the necessary bearing surfaces, whichever may be the lesser.

28.—In the case of continuous beams or slabs, the effective span shall be taken as the distance between the centres of the supporting beams, piers, pillars or walls.

29.—A beam shall be deemed to have fixed ends when its ends are sufficiently secured to other parts of the construction having such rigidity as will maintain the neutral planes of the beam at the ends in their original directions under all variations in the incidence and intensity of loading.

30.—The bending moment to be provided for at every cross-section of a beam or of a slab shall be the maximum at such cross-section, and shall be consistent with the following equations—

(a) Bending moment at the fixed end of a cantilever with a single concentrated load at the free end—

$$B = Wl$$

where W = weight, or working load.
 l = length of effective span.

(b) Bending moment at the fixed end of a cantilever with the load uniformly distributed—

$$B = \frac{Wl}{2}$$

(c) Bending moment at the centre of a beam with both ends freely supported and a single concentrated load at the centre—

$$B = \frac{Wl}{4}$$

(d) Bending moment at the centre of a beam with the ends freely supported and the load uniformly distributed—

$$B = \frac{Wl}{8}$$

(e) Bending moment at the supports and at the centre of a beam with both ends fixed and a single concentrated load at the centre—

$$B = \frac{Wl}{8}$$

(f) Bending moment at the supports and at the centre of a non-continuous beam with both ends fixed and the load uniformly distributed—

$$B = \frac{Wl}{12}$$

(g) Bending moment at the fixed end of a beam with one end fixed and one end freely supported and the load uniformly distributed—

$$B = \frac{Wl}{8}$$

(h) To allow for variations in the incidence of the loading on contiguous spans of continuous beams and slabs, the bending moments to be provided for at any cross-section shall be the maximum at such cross-section due to any position of the load or loads, and shall be consistent with the following equations—

(i) Bending moment near the middle of the span of a beam with one end continuous and one end freely supported and the load uniformly distributed—

$$B = \frac{Wl}{10}$$

(j) Bending moment at the ends of a beam with both ends continuous and the load uniformly distributed—

$$B_e = \frac{Wl}{10}$$

(k) Bending moment at the centre of a beam with both ends continuous and the load uniformly distributed—

$$B_c = \frac{Wl}{12}$$

(l) Bending moment across the centre of a square slab supported on four edges and reinforced with mesh reinforcement or reinforced in two directions at right angles to each other with load uniformly distributed—

$$B = \frac{Wl}{16}$$

(m) Bending moment along the edges of a square slab continuous over four edges and reinforced with mesh reinforcement or reinforced in two directions at right angles to each other with reinforcements bent up over the supports, the load being uniformly distributed—

$$B = \frac{Wl}{20}$$

(n) For other ratios of length to breadth, the bending moments shall be found by the following formulas—

W = weight, or working load.

b = breadth of slab.

l = length of slab.

B=Bending moment at any given cross-section.	Condition at supports	B for shorter span.		B for longer span.	
		Free span=B	Fixed span=B _e	Free span=B	Fixed span=B _c
B at centre of span=B	Free	$\frac{Wb}{8} \cdot \frac{1}{1 + (\frac{b}{l})^4}$	$\frac{Wl}{8} \cdot \frac{1}{1 + (\frac{l}{b})^4}$	$\frac{Wb}{8} \cdot \frac{1}{1 + (\frac{b}{l})^4}$	$\frac{Wl}{8} \cdot \frac{1}{1 + (\frac{l}{b})^4}$
B at end of span=B _e	Fixed	$\frac{Wb}{10} \cdot \frac{1}{1 + (\frac{b}{l})^4}$	$\frac{Wl}{10} \cdot \frac{1}{1 + (\frac{l}{b})^4}$	$\frac{Wb}{10} \cdot \frac{1}{1 + (\frac{b}{l})^4}$	$\frac{Wl}{10} \cdot \frac{1}{1 + (\frac{l}{b})^4}$
B at centre of span=B _c	Fixed	$\frac{Wb}{10} \cdot \frac{1}{1 + (\frac{b}{l})^4}$	$\frac{Wl}{10} \cdot \frac{1}{1 + (\frac{l}{b})^4}$	$\frac{Wb}{10} \cdot \frac{1}{1 + (\frac{b}{l})^4}$	$\frac{Wl}{10} \cdot \frac{1}{1 + (\frac{l}{b})^4}$

Provided that when the length of a slab exceeds twice its breadth no allowance

shall be made for support in the direction of the length of such slab.

In this and all other cases not otherwise provided for, the bending moment on slabs shall be calculated as for beams.

31.—Subject to the provisions of the regulation numbered 67, the spacing of the reinforcement in slabs under a uniformly distributed load may be gradually increased from the middle third of the slab towards the outer edges of the slab provided—

(a) That the spacing at the outer edges be not greater than three times the spacing at the centre of the slab ;

(b) That the bars or strands of the reinforcement be of uniform diameter or thickness throughout the cross-section of the slab.

32.—End spans of a series of continuous beams or slabs shall only be considered as fixed at the extreme ends when adequate provision is made for taking up the additional stresses which would be induced in the supports by such fixity.

33.—Bending moments over the supports of a continuous beam shall not be taken as being reduced by reason of the width of the supports measured in the direction of the span of the beam.

34.—For every condition of loading not specified in these regulations, the bending moment for beams or slabs shall be calcu-

lated so as to give an equivalent margin of safety.

Continuous beams or slabs shall be designed to resist the bending moments which would occur whether all or alternate bays be loaded ; and the reinforcement shall be carried at least as far as the points of contraflexure under any condition of loading.

(To be continued).

CINEMATOGRAH THEATRE, EDGWARE ROAD.

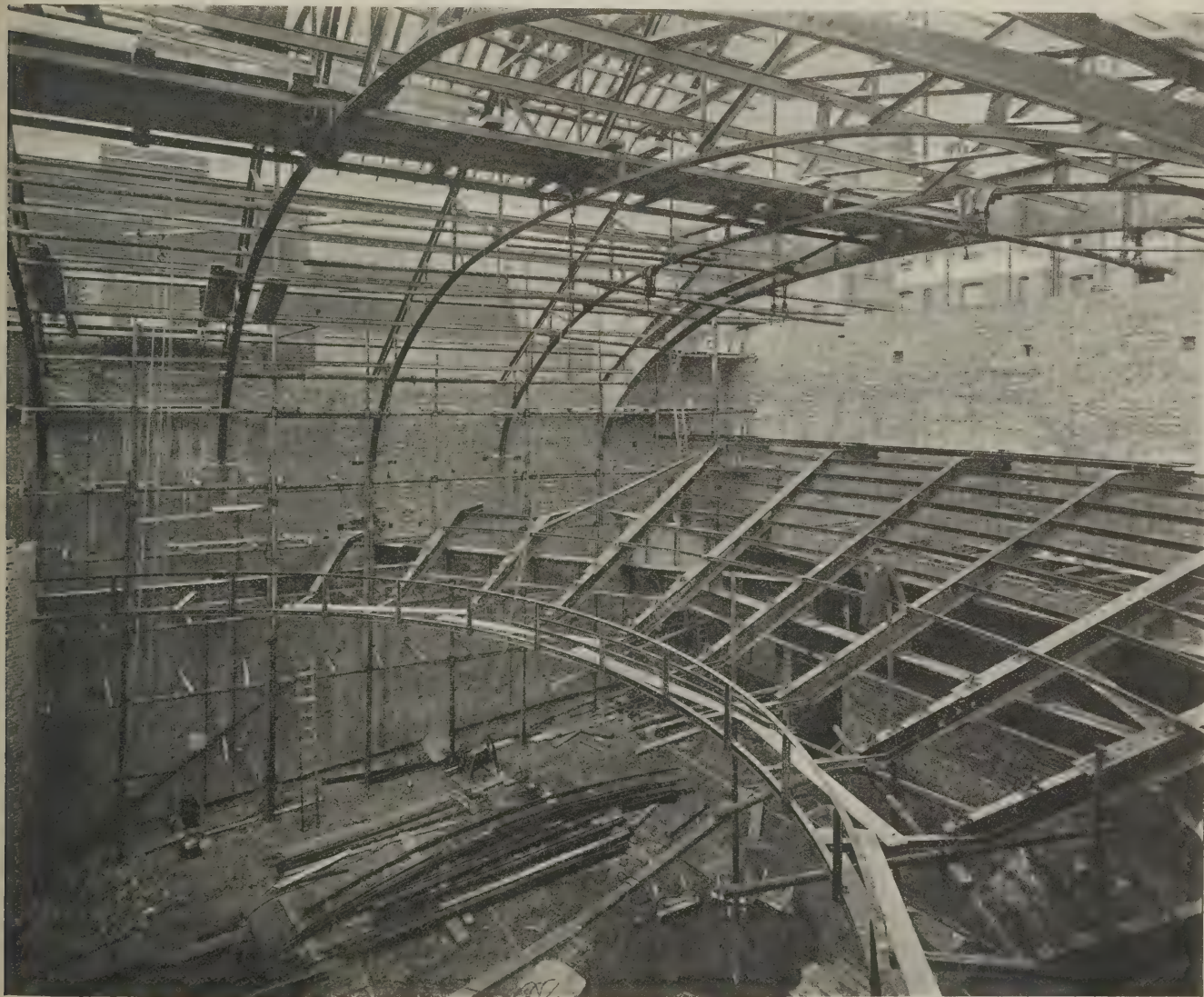
The accompanying illustration shows the skeleton steel construction of the new cinematograph theatre now being erected at the corner of Marylebone Road and Edgware Road for the Electric Pavilions, Ltd. This theatre will shortly be completed, and will accommodate 1,700 people.

It was desirable that no columns should be placed on the ground floor, and the balcony has been cantilevered over a single girder 4 ft. 6 in. in depth, with a span of 78 ft.

The building is being erected from the designs of Messrs. Gale, Durlacher, and Emmett, architects and surveyors, of 15, New Bridge Street, Ludgate Circus. Messrs. Davis Brothers, of 234, Bishopsgate, are the general contractors, and Messrs. A. D. Dawnay and Sons, Ltd., of Battersea, have carried out the steelwork.

THE CONCRETE INSTITUTE.

Volume IV., Part IV. of the "Transactions and Notes" of the Concrete Institute (published at the offices of the Institute, Denison House, 296, Vauxhall Bridge Road, Westminster) contains a paper on "Reinforced Concrete in Southern Nigeria," by Mr. H. C. Huggins; Mr. J. M. Theobald's paper on "Bills of Quantities for Reinforced Concrete"; a paper by Mr. Laurence Gadd, F.I.C., on the "Action of Acids, Oils, and Fats upon Concrete"; and Mr. W. Valentine Ball's "Concrete in its Legal Aspect." Mr. Huggins, who has had much experience in engineering work in Southern Nigeria, anticipating the question whether reinforced concrete is a material to be economically applied in West Africa, replies that the saving in cost of material, and the facility with which iron rods and packages of cement in sealed tins can be transported over long distances of rough country are very apparent against the expense of heavy ironwork and the difficulties of transport it involves. On the other hand, native labour has not attained a very high standard of perfection, and while the engineer, who is certain to have many works to attend to at considerable distances apart, might with fair assurance feel that his iron girders and troughs can come to little harm while their erection is proceeding in his absence, reinforced concrete demands the constant personal supervision of a competent European.



STEELWORK OF CINEMATOGRAH THEATRE, MARYLEBONE ROAD AND EDGWARE ROAD, LONDON.
GALE, DURLACHER, AND EMMETT, ARCHITECTS.

foreman, who is not always available, and whose services naturally add a considerable item to the cost. The writer is of opinion that in West Africa, although the advantage in cost of material and transport is on the side of reinforced concrete, yet it behoves the engineer to look with special care into the question of supervision before rushing into reinforced concrete work too hastily. The presidential address of Mr. E. P. Wells is included, and the discussions on this and the various papers read are reported. On April 30th, 1913, the Institute had 927 members, 36 students, and six special subscribers.

REINFORCED CONCRETE FOR BRIDGES.

The floods in the Eastern counties last August destroyed many bridges, and the Joint Bridges Committee of the Norfolk County Council have presented a report from which it is seen that reinforced concrete is to be largely used in the work of reconstruction and repair. The bridges they arrange in four types: (1) The reinforced concrete pipe in place of the old culvert or smaller bridge; (2) reinforced-concrete bridges with flat floors; (3) reinforced-concrete bridges with arched floors; and (4) steel bridges with brick abutments. A few brick bridges are being rebuilt. The committee have purchased a cement-testing machine for the use of the county surveyor.

In the Acle district, the bridges of Wroxham, Acle, and Potter Heigham have been underpinned with concrete placed by a diver, while at Sherewater and Panxworth concrete pipes have been used. In the Aylsham district, reinforced concrete is being used for the following bridges: Coltishall, 40 ft. span, £1,482 11s.; Hevingham, 18 ft., £650; King's Beck, 23 ft., £375; Thwaite Hill, 23 ft., £375; Banningham, 21 ft., £420; Ifteringham, 35 ft., £675. Dereham District: Blackwater, 10 ft., £250; Hockering, 3 ft., concrete pipes. Loddon District: Woodton, two of 5 ft. span, concrete pipes, £297. Walsingham District: Fulmodeston, two of 3 ft. 2 in., concrete pipes, £32 10s.; Langor, two of 5 ft., concrete pipes, £190; Edgetfield, £460; Thurning, 20 ft., £350; Burgh Beck, Melton, 2 ft., concrete pipes. Downham District: Fincham, 4 ft., concrete pipes, £37. It would appear from the figures that reinforced concrete is a highly economical material for such work. In most instances the work is either completed or is in an advanced state of progress.

NEWS ITEMS.

Change of Address.

Mr. O. P. Milne, F.R.I.B.A., architect, announces that he has removed to more convenient premises at 3, Gower Street, Bedford Square, W.C. Telephone: Regent 2818.

A Paris Traffic Board.

Among the measures which the Prefect of the Paris Police intends to adopt for the regulation of the Paris traffic is the institution of a traffic board, which is to meet twice a month to consider all traffic problems.

Success of the Hampstead Garden Suburb Protest.

The defeat of the Northern Junction Railway, writes Mr. E. G. Culpin, secretary of the Garden Cities and Town Planning Association, is a triumph of public welfare and rights over the interests, or alleged

interests, of railway companies and promoters. An important principle has been established in the Hampstead case, in that railway promoters cannot expect to make a series of arbitrary embankments, cuttings, and ugly viaducts through the heart of residential areas without first consulting local authorities.

Isolation Hospital, Amersham.

In the limited competition for the above Mr. J. E. Newberry, A.R.I.B.A., the assessor, has made the following awards: 1, Messrs. Wills and Anderson, F.F.R.I.B.A., London; 2, Mr. Ernest G. Theakston, F.R.I.B.A., London and Great Missenden.

The British Portland Cement Manufacturers, Ltd.

The directors of this company have resolved to recommend to the shareholders at the forthcoming annual meeting the payment of a final dividend on the 6 per cent. preference shares to April 30th last, and of a dividend for the year on the ordinary shares, at the rate of 7 per cent. per annum, carrying forward a balance of £32,568.

Partnership Dissolved.

Mr. S. S. Reay, F.R.I.B.A., architect and surveyor, 28, Milsom Street, Bath, and 10, Orchard Street, Bristol, informs us that by mutual agreement the partnership between Mr. T. B. Silcock and himself, conducted under the style of "Silcock and Reay," has now terminated, and for the future Mr. S. S. Reay will practise independently, as an architect and surveyor, at the above addresses.

School of Architecture, University College, London.

The annual exhibition of the drawings done in the School of Architecture at University College during the session was opened on July 5th, and will remain open daily (Sundays excepted) until Saturday, July 19th, from 10 a.m. to 6 p.m. It is being held in the Science Library in the main buildings of the College, the entrance to which is from Gower Street, and is free to the public.

Wrexham Parish Church.

It is proposed to alter the east end of Wrexham Parish Church (which is popularly known as one of "the seven wonders of Wales"), and to provide a morning chapel. Before the alterations are made, a report on the proposal by Sir Thomas G. Jackson, R.A., is to be considered. Sir Thomas paid his first visit to Wrexham the other day and spent several hours making minute measurements of the east end of the church, which was erected in the years 1470-72.

Bristol Builders Boycott the Education Committee.

At a meeting of the Bristol Education Committee, the Sites and Buildings Committee reported that at their last meeting the chairman had submitted a list of schools which, in his opinion, most needed renovation. The unqualified tenders received for cleaning and painting during the midsummer holidays were again considered, and it was resolved: "That this committee report that the master builders as a body decline to send in tenders for the annual cleaning and painting on the new 'conditions of contract,' and as the number of firms who have sent in unqualified tenders is so small as practically to eliminate the element of competition, this committee recommend that the annual renovation of Council schools be postponed." This recommendation was adopted.

OUR TRADE IN SOUTH AMERICA.

For some time past the Brilliant Sign Co., of London and elsewhere, have had a very successful agency in Buenos Ayres dealing with the whole of the Argentine, but the business has now outgrown their agent's capacity. The company have therefore decided to open a branch business, and have incorporated a company in London, with a £5,000 capital and power to increase the same, registered as Brilliant Signs, Lettres Morgan, Ltd., this company operating solely in South America. Their works director (Mr. W. D. Lambert) sailed by the Highland Glen, on the 18th ult., with a staff of workmen, power presses, dies, and all commodities for installing a fully equipped sign factory. Land has already been purchased, and the building is on the verge of completion. It will be a replica of the London factory, only, of course, on smaller lines, but built on the same economical principle. Showrooms have been taken in a central part of the city, and the company look forward with confidence to a big success in this part of the country; success should be ensured if only from the fact of their manufacturing on the spot and introducing their several designs and new style of signs of all kinds, which are so popular in England and Continental Europe. The governing director of the company, Mr. F. G. Lucas, will be visiting the country some time in July for the purpose of completing negotiations.

THE ARCHITECTURAL ASSOCIATION.

School of Architecture Breaking-Up Ceremony.

The Architectural Association School of Architecture breaking-up ceremony will take place on July 18th, from 3 to 6 p.m., at 18, Tufton Street, Westminster, where there will be an exhibition of work by students in the school and the president will announce the awards. There will also be an exhibition of paintings and drawings from public schools. Mr. W. Curtis Green, F.R.I.B.A., President, will occupy the chair, and will be supported by Sir Aston Webb, C.B., R.A., and Mr. Paul Waterhouse, M.A., F.R.I.B.A. The annual address to the students will be delivered by Mr. Charles Sims, A.R.A.

UNIVERSITY OF SHEFFIELD DEPARTMENT OF ARCHITECTURE.

Diploma Examinations, June, 1913.

The examinations held at the end of the Five Years' Course for the Diploma have resulted as follows: First Class Diploma, J. H. Odom and H. B. Leighton, jun. The external examiner was Mr. Halsey Ralph Ricardo, F.R.I.B.A. Mr. Odom has been awarded the book prize, "Standard Examples of Architectural Details," presented by the proprietors of Technical Journals, Ltd.

R.I.B.A. EXAMINATIONS, 1913-14.

The Final: Problems in Design.

In the particulars for subjects X. XI., and XII. of the alternative problems in design, under Subject XI. (b) the words "A Country Club" should read "A County Club." Under Subject XII. (b) "Club-rooms" should read "Clubroom." [The particulars were printed as received.—Eds. A. and B.J.]

THE ARCHITECTS' & BUILDERS' JOURNAL.

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No. 43.



(From Piranesi.)



THE TEMPLE OF TRAJAN, ROME. FROM A DRAWING BY C. R. COCKERELL.

(See page 83.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

JULY 23, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 38 No. 967.

Anarchism and the Architect.

LAST week we cited the Iconoclast in architectural criticism. A few days afterwards we encountered an Anarchist, or at least a Reactionary, in no less a person than Mr. L. March Philipps, and in so incongruous an organ of opinion as the "Morning Post." He wants to know, "Is there any reason to suppose that anything worth teaching ever will be taught?" That is the last sentence in his obscurantist essay, and it very fairly represents the pose that he has seen fit to assume, and a perversity which, we hope, may turn out to be merely a mood of the moment.

To retort upon him that presumably his reading and writing did not come by nature would be to imitate his perversity. It is easy to guess what he means by "anything worth teaching." He means anything which he may condescend to admire; and, outside hoary antiquities and the modern picturesque country house (a house having "that air of being at one with its surroundings, and filling a place prepared for it by Nature, which is, after all, the most indispensable of all conditions to architectural success") what Mr. Philipps is prepared to admire seems to be precious little, and especially nothing that is Classical. Two hundred and fifty years of academic training, he finds, have produced only two buildings that approach success. These are the Banqueting Hall and St. Paul's Cathedral, and he sniffs and stints at both. The former, observe, is admired by nobody but connoisseurs; the latter we pretend to admire because it is London's cathedral, although in reality we do not care very much about it. To such an observation it is not necessary to make any other reply than that very much depends upon the tint of one's spectacles, or the robustness of one's prejudices; for it is not criticism. Inigo Jones and Christopher Wren, the first and final flowers of architectural scholarship, fade and fall under this shrewd north-easterly blast from Mr. March Philipps, and there is an end to them and to Renaissance architecture, which is to be superseded by—Mr. Philipps could tell us what, but will not.

The Academicians, too, whoever they may be, would have been blighted by the same gust, were it not for a certain misdirection of the afflatus. It seems that the Academicians "declare that architecture, like algebra, is a matter of knowledge and tuition, and that the root principles of the science are embodied in classic design. . . . They began to teach about two hundred and fifty years ago, and they have been teaching ever since. . . . Their two feats are St. Paul's . . . and the Banqueting Hall." Of both feats, as we have seen, our author disapproves. But in thus resolving English Renaissance architecture to its irreducible minimum, in order that he might demolish it all at a single blow, he shows the same disdain for chronology as for other manifestations of mere education. Who were the Academicians who began their teaching 250 years ago? As it is longer than that since Inigo Jones died, it seems to follow that his Banqueting Hall can hardly be claimed as one of their feats, unless the influence of these remarkable

Academies operated retrospectively. This admission, of course, strengthens the author's case: St. Paul's thus becomes the one solitary feat of those mysterious Academicians, who, if Sir Francis Fox's grouting machine should happen at the present crisis to fail of its customary feat, will have not a leg to stand upon.

In this last extremity we shall turn "to those means and channels by which life and art were of old connected, and through which vitality was poured from life into art." This dark though pretty saying may be interpreted to mean that Art proceeds from below upwards; but it leaves the means and channels unexplained. The only means and channels that are at present grossly palpable are those which our prophet and seer contemns as academical and therefore arid and sterile. He has discovered Academies and he has seen bad buildings, but by what means and channels, save by the wearisome old fallacy of *post hoc ergo propter hoc*, he connects these divers things is not easily discernible.

One more gem of thought from this close reasoner we cannot refrain from quoting: "If the facts were a little different, if, for example, the most learned professors were those who built the loveliest buildings, and the architecture we have most to complain of were invariably, or even, as a rule, the work of ignorance or stupidity, there would be something to be said for a rigorous system of instruction." He finds that the most learned professors have given us the unloveliest buildings. It is a very comfortable doctrine for the heathen hordes of undertakers, house-agents, gas-fitters, and what not (to say nothing of "the ignorant and stupid") who practise "architecture" with impunity, but without applause: for, if it is a fair deduction that learning necessarily produces bad architecture, then presumably ignorance and stupidity are virtues tending to the opposite effect. If this is the strongest argument that Mr. March Philipps can bring against Registration, which, incidentally, he seems to resent because the foul fiend Education lurks in it, then we cheerfully make him a present of it, and trust that he will go on opposing the movement with the same dynamic force.

To assert that we have had two hundred and fifty years of academic architectural education, and that two indifferently successful buildings are its most considerable product, is such a transparent rhetorical exaggeration that categorical denial on either point would be as fantastic and as futile as the assertion. There would be much less inaccuracy in declaring that, on the contrary, architectural education has hardly yet begun. It is only to-day that it is being seriously taken in hand in this country, and this may be said without detriment and therefore without apology to the schools of architecture that have accomplished such excellent educative work in the past, and that are now showing signs of healthy expansion. It is, indeed, this growing educational activity that has provoked the inevitable reactionary movement of which Mr. March Philipps does himself the injustice to become the protagonist. When he assumes that ful-

ness of knowledge has resulted in miserable failure he might easily be misconstrued as implying that fulness of ignorance would achieve success; but we have no desire to attribute such nonsense to a writer whose charming essays on the architecture of the ancients have procured him a popularity that invests his indictment with much more than its intrinsic value: which, from our point of view, is stark naught. What he means is, we hope, not that he would substitute rule-of-thumb for methodical training, but that education cannot produce genius and may sophisticate or extinguish it. That, however, would be the wrong kind of education. The right kind will discover, foster, and develop genius by directing it to the truest and purest sources of inspiration, and by furnishing it with the fullest means of expression. F. R.

The Rival Sites for London University.

CHOICE of a site for London University remains an open question. It is not within our province to go into the rather sordid details of the squabble that is delaying the selection and complicating the problem. Lord Haldane, it appears, has set his heart on the site on the Bedford estate, behind the British Museum; but the price set upon it is about three times as much as that arrived at in a valuation made by the London County Council. No doubt largely influenced by this reason, the Senate resolved to reject the Bedford site, and, by a small majority, recommended the site of the Foundling Hospital. Of the rival schemes, we have no hesitation in preferring that put forward by the Senate, and our choice is based upon considerations that have nothing whatever to do with the question of cost. It is certain, however, that the supporters of Lord Haldane are numerous and influential, and will not yield without a struggle. Neither will the Senate; and ultimately, after a good deal of wasted time and temper, a *tertium quid* may be introduced which will be satisfactory to both parties in so far as it will prevent either party getting its own way. That, unfortunately, is the normal course of events in this country, where merely petty personal considerations, and the national love of bickering that culminates in compromise, are allowed to obscure and to overwhelm the issues that are really vital; for by the time the quarrel is ended, energy and interest have become so far exhausted that very little remain for expenditure on the mere details of architecture. London University ought to secure the finest site and the noblest building in London; but dissension followed by compromise will probably result in another wasted opportunity: for which, of course, the architectural profession will ultimately bear the brunt of the blame; because the building will remain long after its unpropitious genesis has been forgotten.

Henry VII.'s Chapel and the Order of the Bath.

YESTERDAY, after months of preparation, the Chapel of Henry VII. in Westminster Abbey resumed its long-disused service as the chapel in which the knights of the Order of the Bath were installed, and the occasion has been seized by the lay Press for the "writing-up" of the chapel: as, "For those who understand, there is no such triumph in all the records of the builder's craft as is the roof of Henry VII.'s chapel. . . . Nowhere else is there that easy insolence with which Sir Reginald [Bray] suspended in mid air 200 tons of stalactite stone as if they were clustered snow." This writer seems to know "what the public want," even in the matter of syntax; but any way of attracting their attention to architecture is as estimable as it is successful. Certainly the fan-vaulted roof is one of the three similar roofs in England that are unrivalled abroad; the others being, of course, the roof of King's College, Cambridge, and that of St. George's Chapel at Windsor, these three representing the grand climax of the Perpendicular

style. It is gratifying to see the chapel of St. Mary the Virgin, commonly known as Henry VII.'s Chapel, put to some more dignified use than that of a mere museum or show-place. Not that this character should be abolished; but that the public may have an additional incentive for visiting what is by common consent esteemed as a supreme achievement in architecture.

The Architectural Association School.

THE annual exhibition of work by students of the Architectural Association School of Architecture, which was opened on Friday last and closes to-day, shows what a remarkable advance the School has made. This is especially noticeable in the case of the designs submitted under the new R.I.B.A. scheme and approved by the Board of Architectural Education. These designs display marked ability, and are admirably rendered in the manner which distinguishes modern French and American drawings of a similar kind. The only thing we feel about them is that they are perhaps too derivative, their source of inspiration becoming rather insistent. Thus, in the designs for a monument to commemorate the bringing of water to a town we are brought face to face with Beaux-Arts studies, and in the eagerness to seize effective designs for what were originally intended as war memorials the essential character of the subject set has been considerably overlooked. Putting such considerations aside, the best design is Mr. Harold Dicksee's. In the designs for a covered carriage entrance to a large hotel more individuality is displayed. In this case the only criticism we have to make is that the modern hotel tends towards a projecting glass and iron treatment like the Ritz rather than a drive in and out of stone gateways. One feature we note with much pleasure is the good drawing of the figure, seen in many drawings. Here the school excels, and when with it is coupled a fine sense of architectural design we may expect to see excellent results, under the direction of the new headmaster, Mr. Robert Atkinson. At last Friday's ceremony the retiring headmaster, Mr. H. P. G. Maule, was presented with a pair of silver candelabra from members of the Architectural Association and past and present students, in recognition of the great services he has rendered to the School. We offer him our congratulations, and at the same time extend them to Mr. Atkinson for the brilliant work he is achieving.

New York's Tall Buildings.

A LIST of the tall buildings on Manhattan Island, the original portion of New York City, which has been prepared by the Superintendent of the Bureau of Buildings for the Borough of Manhattan, shows that the average height of the "skyscrapers" in the city, assuming that any building of ten storeys or over belongs to that class, is thirteen storeys. In the following list basements are included where the floor of the first storey is above street level and where there is an entrance into the basement from the street. Roof structures or penthouses, when actually occupied for housekeeper's dwellings or some purpose other than for housing lift machinery and stair exits, are considered as an additional storey. The list shows that the buildings include 1 of 55 storeys, 1 of 45, 1 of 41, 1 of 38, 3 of 33, 1 of 32, 1 of 31, 2 of 27, 4 of 26, 4 of 24, 3 of 23, 11 of 22, 15 of 21, 12 of 20, 13 of 19, 13 of 18, 31 of 17, 28 of 16, 27 of 15, 44 of 14, 389 of 13, 191 of 12, 181 of 11, and 179 of 10 storeys, or a total of 1,156. These figures form an interesting commentary on the progress made in the height of buildings in New York City during the last twenty-five years. In 1888 the plans for a nine-storey steel-frame structure were approved only after a long delay on the part of the municipal authorities, yet at the present time this particular building, which was the forerunner of the modern "skyscraper," is not classed among them!

CLASSIC ARCHITECTURE IN THE WEST OF ENGLAND, AND THE WORK OF JOHN FOULSTON.

[Specially Contributed.]

It is commonly supposed that Exeter, the official capital of Devonshire, contains much of the architectural interest of the West Country—that is, all that generally attracts the tourist or those who follow the tenets of the guide-book. Few realise that a greater interest is to be found fifty miles further west, and these unwisely ignore the "Three Towns," which constitute the real, yet unnamed, capital of the south-west of England. The towns front the water's edge from where the Plym loses its identity in the Cattedwater round the foreshore of the Sound, past the railway dock at Millbay, the Victualling Yards at Stonehouse, the Naval Docks of Devonport and Keyham, and up the Hamoaze, the estuary of the Tamar, and stretch far beyond the great railway bridge, which bears the signature in letters 6 ft. high:

I. K. BRUNEL,
ENGINEER,
1859.

Such is the sea bow of Plymouth, Stonehouse, and Devonport, eight miles of varied interest, a complex labyrinth the intricacies of which are marked by steeples of churches, furnace chimneys, and the fighting tops of battleships.

The architectural aspect of Plymouth and Devonport has changed but little since the first quarter of the last century. It was then that a great town-planning phase was in progress. Public buildings were planned and erected, stately squares and terraces were carried into being; Union Street, the long straight thoroughfare connecting the "Three Towns," was converted from a country lane into a busy street with well-schemed junctions, and the famous Octagon was formed, now unfortunately mutilated almost beyond recognition. At this date a new Devonport was projected, which not only augmented the older portion of the town, but created a distinct civic centre. It must be remembered that until the year 1691 the site of Devonport consisted of a stretch of common land and a few farms. This, however, was completely changed when the great Arsenal sanctioned by William of Orange was begun, and to-day it is second only to Portsmouth in importance.

At Devonport, on every side, is portrayed the fact that it is a Government town; the Royal Arms are very much in evidence; the leading hotel in Fore Street is named the "Royal," and even the entrance gateways to the Dockyards bear that look of regality and importance which is never to be associated with private enterprise. The older streets of this breezy nautical town are delightful. One chanceth upon many pleasant echoes of the eighteenth century, and in the diversity of door-heads, bow-windows, and cornices one reads contemporary history as from an open book. The majority of the buildings in Plymouth sport weather coats of painted cement, but this garment is not seriously worn by Devonport. At No. 12, George Street, is to be seen the traditional usage, in the West Country, of hanging slates and capping them by flat cornices: a feat of daring is attempted in the shaping of the elliptical bow window with its domical roof. Slates are here seen in diminishing courses well and truly hung. No. 37, St. Aubyn Street, now the office of the Borough Treasurer, offers perhaps the most interesting example; two immense bow windows, with sashing of a type to enjoy, form the chief attributes of the design, a porch spherically roofed is placed between the bows, and the slate-hanging is finished with a slight cornice and fluted frieze. In Duke Street there are many other examples, among which No. 7, a small bow-fronted shop, will repay study. Perhaps no better illustration could be found of the refinement associated with domestic architecture of the late eighteenth century than that expressed by the small colony of houses fronting the Baths at Mount Wise. (See illustration below.)

There are numerous churches in Devonport which refuse to be passed by without notice. St. Aubyn's Church, built in 1771, is one exhibiting a pleasing treatment of tower and spire; the simple octagonal cupola of St. John's towers high above the clustering roofs, and then in neighbourly proximity there is the Old Chapel, dated 1799, built of limestone and brick dressings, standing humbly to-day overshadowed by structures of more recent growth. There is in Catherine Street a Moravian Chapel bearing the date 1771, and



THE BATHS, MOUNT WISE, DEVONPORT.



THE COLUMN, DEVONPORT. JOHN FOULSTON, ARCHITECT.

other meeting-places of numerous dissenting bodies are encountered. Some are, in the architectural view, quite superfluously labelled "Primitive."

A feature of town-planning interest is to be seen in the lesser streets of Stonehouse; the back gardens of each street are separated by a road of reasonable width which serves as an artery for the removal of refuse from each house. Fringing each side of this road one notes a forest of slight masts with pulley-blocks and falls, and for a moment one associates the idea with gala and fête days; but a more practical reason exists, for in this town of seafarers clothes-props are unknown, but on washing-days the many lines are fully dressed, explaining the reason for the masts.

Approaching the municipal and Government buildings, one is brought into touch with the organisation and the official life of the town, and incidentally confronted with buildings of absorbing interest. There is a local tradition to the effect that Vanbrugh built the Gun Wharf in 1728 as part of the dépôt of the Ordnance Stores; evidence, however, is lacking. The Royal William Victualling Yards at Stonehouse are connected with the business of provisioning the Fleet; the main front, facing Mount Wise, is a well-balanced design, carried out in dressed granite and limestone. These vast buildings were completed in 1835, at a cost of nearly one and a half millions. Another series of buildings of equal merit are those which form the Raglan Barracks. (See illustration on p. 85.) The entrance gateway and clock tower of the latter bear a striking resemblance to the central feature in the composition of the Victualling Yard. In many ways the façade to the barracks is by far the most satisfactory Classic building in the "Three Towns." The difficulties to be surmounted in arranging a projecting portico as a central feature to a lengthy frontage which forms at the same time the main entrance to a courtyard have oftentimes proved a redoubtable stumbling-block, even to architects of experience. In this particular example

the problem has been mastered in those simple terms which move the studious to admiration.

From its prominent position at the top of Kerr Street, the Guildhall dominates the civic centre. The south side of this street is occupied by the old municipal offices, and the site immediately to the north of the Guildhall carries the lofty Greek Doric column erected in 1829 to commemorate the adoption of the present name of the town.

A few other buildings in Devonport must be noted before attention is given to the architecture of Plymouth. The Free Library in Duke Street, after the Italian mode which Sir Charles Barry made popular, is a fine academic design; the Markets in Tavistock Street offer an interest not usually seen in this type of work, and the circular corner to the Post Office building, although unfortunately marred by a modern doorway, still retains its original character of rich refinement. St. Michael's Terrace and Albemarle Villas are compositions which date from the early nineteenth century. They face the site chosen for the new municipal offices, and command extensive views over the Sound. In Alma Road, near the Great Western Railway Station, there is a delightful slate-hung lodge, but this point marks the beginning of Plymouth.

Although the three towns are three distinct places, with separate governing bodies and dissimilar characteristics, the junctioning between them is imperceptible. Therefore, for the purpose of this article, it has been thought expedient to lead from the lesser county borough to the greater, to describe the features of the naval centre before dealing with those of the more ancient seaport town. Plymouth can roughly be divided into three main divisions, and these are as follows, the old portion grouped near Sutton Pool, the commercial harbour of the port; George Street, Bedford Street, Old Town Street, comprising the chief shopping interests, and the civic centre; and the rising although far from beautiful suburb of Mutley through which one enters the town by rail. Lockyer Street contains a portion of that fine block of buildings consisting of the Royal Hotel, the Assembly Rooms, and the Theatre Royal; and near by is the Branch Bank of England which Professor Cockerell designed. (See illustration opposite.) Next to the Theatre Royal is the Athenæum, which has a tetrastyle Greek Doric fronton. The side addition to this building, which was added a decade ago, is a very scholarly piece of work. On the Hoe there is a beautifully proportioned terrace called the Esplanade, and attention must be directed to the houses in the streets leading from the Hoe to the lower portions of



THE GUILDHALL, DEVONPORT. JOHN FOULSTON, ARCHITECT.

the town. Even London would be proud of such a fine sweep as that presented by the Crescent, although the octagonal lodge gates guarding this once exclusive spot no longer oppose the entrance of the curious, and one feels tempted to regret the former days of splendour. It is a curious fact, and one moreover which will not be readily accepted, especially by those who refuse to accord due appreciation to all the phases of architectural development, that the early years of the last century should have been so prolific in sane schemes for the betterment of towns. Indeed, viewed in the light of to-day and by comparison with the haphazard methods which distinguish modern practice, the products of this hitherto much-abused period stand forth in remarkable contrast. It is safe to say that the dignity of many English towns would be considerably diminished were it not for the presence of such fine streets and crescents as those which are now fast receiving recognition as possessing superlative architectural merit.

The application of the later phases of the Classic tradition to West of England architecture, especially in the neighbourhood of Plymouth, was due to the untiring labours of one man, fortunately a man of courage and taste. John Foulston was born in 1772 and died in 1842, after practising for twenty-six years as the leading architect in this district. At the beginning of his career he became a pupil of Thomas Hardwick, who in turn was a pupil of Sir William Chambers. Many other instances could be enumerated to show the continuance of the eighteenth-century tradition into the nineteenth, through the system of pupilage which then prevailed. Foulston appears to have started practice at the age of twenty-four in St. Alban's Place, Pall Mall, but it was not till 1811 that he became famous, when he won a competition against six other competitors for a large building scheme at Plymouth. This scheme comprised the Royal Hotel, the Assembly Rooms, and the Theatre, and was carried into effect at great cost. The northern frontage of this block is nearly 270 ft. long, and in the centre is placed the magnificent octastyle portico of Ionic columns, forming an ideal entrance to the theatre. Foulston's original intention appears to have been to employ dual tetrastyle porticoes for the frontage of the Hotel in Lockyer Street, but this idea was dropped, mainly on the question of cost. The planning of the hotel is on a scale of spacious simplicity, but modern ideas in the matter of decoration have usurped the simple scheme originally designed. In the case of the ball-room a double cube, 40 ft. by 80 ft., forms an integral feature of the design. The architectural treatment consists of Greek Corinthian columns. The interior

design of the theatre in its sympathy of line is good, but the detail replaces the original work. At the beginning of the nineteenth century large stages were considered of greater importance than huge auditoriums, possibly because deep vistral effects were then the order of the day for nearly every production; this is the case in the arrangement of this particular theatre. Not only was Foulston a great designer but he was thoroughly in sympathy with the then innovation of cast iron construction, which he introduced for portions of the roof and the columns which support the circle tiers. After completing this important work, his ability was fully established, and his services were speedily in great demand. In 1818 the Athenæum was projected, and Foulston was commissioned to undertake the work, which he finished in 1819. The building contains various features of more than ordinary merit, such as the President's throne and the arrangement and design of the library bookcases. St. Andrew's Church was begun in 1823. This building is one of the few in England boldly following the individual manner of Sir John Soane. In Princess Square the hand of Foulston is unmistakable. Previously, in 1813, he had prepared a design for the Exchange. This, however, was not realised exactly as the architect intended. The front to the Public Library was destroyed to make way for the Cottonian Museum. The splendid "Crescent," with its park-like lay-out and lodges, and the lengthy range of houses which face this feature, were designed by Foulston. At Stonehouse he built St. Paul's Chapel; in Devonport the municipal offices and the Guildhall, which were erected between the years 1821-2, and formed the civic centre with approach from Kerr Street. For the Public Library he departed from the orthodox, and lapsed into a version of Egyptian, which, notwithstanding the unsuitability of the style, is a well-proportioned building. But by far the most successful structure in Devonport is the splendid Doric column with its fine wing-walls. In the suburb of Stoke, between Plymouth and Devonport, he carried out St. Michael's Terrace, using the Greek Ionic Order and introducing beautifully detailed glazed porches as entrances: the adjoining Belmont House and Albe-marle Villas with the trellis verandahs are his work.

Judging from the street architecture extant in almost every part of the "Three Towns" the influence of Foulston is clearly apparent. It is known with some degree of certainty that he supplied designs to builders for ranges of streets, but the excellence of the detail and the knowledge displayed in solving awkward difficulties, even in buildings of third-rate importance, testify to the high esteem in which his influence was held. In 1818 Foulston designed the original portion of the Cornwall County Lunatic Asylum. He had previously prepared a design for Bristol Gaol. At Liskeard there is a finely composed Infirmary, with an octagonal central feature: the whole façade being slate hung and screened from the road by a lower building with an arched entrance: at Bideford a replica of this structure exists. Both designs follow Foulston's manner. The Royal Hotel at Devonport and Webb's Hotel at Liskeard also bear a family likeness. In 1839, towards the close of his life, he gave a design for the Public Ballroom at Torquay.

Foulston's great object was to improve architectural taste, and his influence reached in every direction, with the result that from Exeter to Penzance the existing building traditions were considerably strengthened, and a desire for town-planning was fostered. Compared with the vast number of buildings erected by his great contemporaries Sir Robert Smirke and Sir John Soane, Foulston's individual buildings are few in number, yet such is their admirable placing and so justifiable their cognate arrangement that Foulston's life-work is of relative importance in the history of the neo-Classic movement.

R.



BANK OF ENGLAND, PLYMOUTH.
C. R. COCKERELL, ARCHITECT.

HERE AND THERE.

A BOOK on "The Art and Craft of Home-making," just published at the low price of 3s. 6d., offers us a couple of hundred pages of breezy writing, from which I purpose now to abstract a few paragraphs of special interest. The author, Mr. Edward W. Gregory, has many good things to say about the design, furnishing, embellishing, and equipment of a house. At the outset, even while remarking that the book is intended for the general public, I must confess to a distaste for the title; it conjures up at once a vision of people without taste trying desperately to surround themselves with "artistic" things; and the coloured frontispiece of "Home," where a lady stands, very self-conscious, at the door of a double-barrelled garden suburb house, awaiting the arrival of a gentleman in felt hat and home-spun, tends to confirm one's apprehensions; but on going through the chapters the first tremulous feelings pass away, and instead of a painfully artistic thesis we find a very practical and very amusing criticism on most things related to a house. The book is written with great ease, and the element of colloquialism which frequently creeps in is very entertaining. As a result, one can read without fatigue, which is more than can be said about the majority of books dealing with architectural subjects.

* * * *

In one of his early chapters the author sets out to tell his readers all about wallpapers. It is not easy, he says, to retain the same degree of interest all through the decoration and furnishing of a house as is aroused by the entertaining pastime of choosing wallpapers. No one seems to be in want of opinions on the subject, and liveliness of discussion can easily develop into most acrimonious argument when the respective merits of sitting-room and bedroom papers are under consideration. And the reason for this is, no doubt, that people go upon personal likes and dislikes rather than upon intelligent principles. Dipping into the subject in some detail, Mr. Gregory urges that if a wallpaper has birds on it drawn in a highly naturalistic way, the less they look like real birds the better, for the necessary decapitations to suit cornices, skirtings, and other limitations will then be the less noticeable. I am glad, however, to see a commendation of chintz papers. "It is perfectly easy to contend that such papers, having no relationship whatever to a wall, which is a solid piece of building construction, are artistically immoral. But, after all, everybody knows that a wall is a wall. There is no necessity to labour the point by declining to hang a paper on it which does not, in its design, acknowledge the point." But let us go on to another chapter.

* * * *

Here we find ourselves confronted by the drawing-room, and the passing of it; for in these days of many books of house designs, who is not familiar with the sitting-hall or the living-room within the limits of whose four walls (and tap-room ingle-nook) we are supposed to relish the three-fold practice of eating, working, and receiving? Remembering these fearsome creations in all their painful details and setting before us the maxim that a house is a place to live in, not to pose in, there is some sense in a drawing-room after all. "If it leads, on the one hand, to an artificial self-conscious propriety, its use, at any rate, prevents the household degenerating into slovenliness, which is even worse. A house without a drawing-room is not necessarily an improvement on the older order of things. It is only different." In the case of the dining-room we come upon quite a separate problem, for this is consecrated to the serious business of eating a British dinner: hence the regulation equipment, which, as Mr. Gregory says, smacks of sirloin of beef,

Yorkshire pudding, cabbage, potatoes, and dumplings. And the most offending piece of furniture is—or rather let us say was—the big sideboard. Here our author is ready to hand. "We feel a little-overwhelmed, a little bullied and overpowered, by the gigantic piece of furniture which impels us to be solemn and dignified at dinner, as if we were eating in a church. The whole idea of the commercial sideboard has been to emphasise and glorify the idea of eating. One may look back with disgust on the eighteenth-century three-bottle men, but, at any rate, in those days the furniture of the dining-room was nothing like so aggressive and artistically indigestible as it became during the nineteenth century, when it was no longer the fashion for gentlemen to remain seated at the dining-table until they rolled under it."

* * * *

Now a word, in conclusion, on another iniquity which superior persons are always pleased to tilt at, the popular failing for a "pair." At a time when Classicism is being helped on by many advocates, one ought perhaps to be thankful for even this vestige of a feeling for symmetry, and not to cavil at a member of the British Public who still likes to have a spirited horseman on one side of the clock and another, exactly balancing, on the other side, and who is only happy when he can get two long picture-frames of precisely the same size, shape, and colour to hang horizontally and symmetrically on either side of a picture-frame hung vertically. Yet, however tolerant we may seek to be—and we are now so wide in our decorative sympathies that even the gilt-frame extravagances of French Courts are not regarded with offence—we must draw the line when it comes to a pair, not of picture-frames, but of subjects. Mid-Victorian sentiment, Mr. Gregory reminds us, could scarcely tolerate the separation of such close relations as the "Creation" on one side of the hall and "The Day of Judgment" on the other, or a sideboard flanked by day and night effects of eruptions of Vesuvius. But it is hardly necessary to emphasise that there is something fundamentally wrong with pictures painted in dependence on one another in this way. "Surely this notion of having pictures to match one another is the shaggiest ever conceived in the mind of a dealer: for it is entirely a dealer's dodge, suggested generations ago to some impecunious artist who, naturally enough, preferred to sell two pictures instead of one." Readers of this Journal, of course, will never have been guilty of such bad taste, but Mr. Gregory is talking to the large outside public, and may well point out their shortcomings. And it is because he does this so entertainingly that I commend his book.

* * * *

The fact that the great cross on top of St. Paul's dome is about to have the grime of forty years removed from its surface, and a new covering of "double gold" applied, prompts a writer in the "Morning Post," who recalls the Jubilee illuminations, when the cross was picked out stark by a searchlight, to say that "some clergy have been busy trying to get it permanently outlined by electric lamps." I suggest that the proposal might be made still more complete by having the lamps in a triple series of red, green, and white, so that they could be alternated. The same thing is already done on the Shot Tower, and all the host of cinema palaces, and there is no reason for leaving out St. Paul's. After all it is only the biggest and finest building in London. I am, however, strongly opposed to the proposal to make the dome revolve. Even if Mr. Shaw's idea of the future theatre is to have a stationary stage and to whirl the audience around it, there is no necessity to begin with St. Paul's.

UBIQUE.

OUR PLATES.

The Temple of Trajan, Rome.

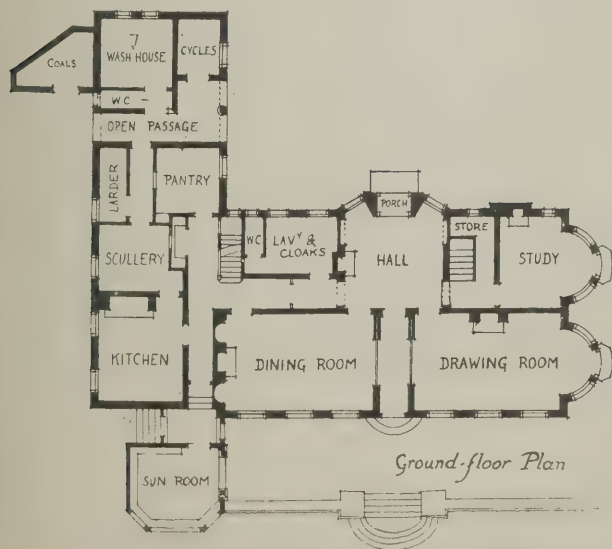
THE drawing of the Temple of Trajan at Rome by Professor Cockerell which we reproduce on page 76 is one of a series (now hanging in the Architectural School of the Royal Academy) discovered many years ago in the vaults of Old Burlington House. The original perspectives were probably made, for lecture purposes, by Cockerell's chief clerk, Mr. T. G. Goodchild; the professor worked on these, drew in the figures, and gave them that brilliant effect of light and shade which characterises his drawings. The Temple of Trajan, built by Hadrian in the rear of the Ulpian Basilica, was enclosed in a large court surrounded with a peristyle of columns or two stories. The temple was of the Corinthian order with an octastyle portico of considerable projection, and perhaps fourteen columns on each flank. The outer columns were of granite, those inside the portico of white marble. The structure shown on the hill to the left is the Temple of Jupiter Capitolinus, which was built on an enormous platform and comprised three cella, side by side, with a tetrastyle portico in front. The structures shown to the right of the drawing are probably the Temple of Juno Moneta and the column of Marcus Aurelius, though neither of these could have been seen from the point of view selected.

The Raglan Barracks, Devonport.

The façade to these barracks is the best piece of Classic design to be seen in the "Three Towns." It was carried out about seventy years ago by the War Office architectural department and shows that some capable men then had charge of such work. A fuller comment on the design will be found on page 80, in the article on "Classic Architecture in the West of England."

House at Alderley Edge, Cheshire.

This house, illustrated on page 87, has been built for Walter Milne, Esq., from designs by Mr. Percy Scott Worthington, M.A., F.R.I.B.A., of Manchester. The hillside on which it stands falls steeply away to the south-west, and has been terraced along this front. The gardens are not yet complete. The external walls of the house are of brick, rough-cast, with a base of local stone, the roof being of Cotswold stone slates, with eaves boarding of chestnut. The plan shows the general arrangement of the rooms. The drawing-room and dining-room may be made into one by throwing back the folding doors, so as to enclose the central passage and cut it off from the hall, which is of two stories. The north-east wing contains the kitchens, etc., on the ground floor, with nurseries and servants'



Ground-floor Plan



Scale of Feet

First-floor Plan

HOUSE AT ALDERLEY EDGE, CHESHIRE. PERCY SCOTT WORTHINGTON, M.A., F.R.I.B.A., ARCHITECT.

bedrooms on the first floor. The woodwork generally is of oak. The builders were Messrs. Brown, of Wilmslow.

St. Jude's-on-the-Hill, Hampstead Garden Suburb.

On pages 90 and 91 we publish a working drawing of the south aisle of this church, which is erected on the highest part of the Hampstead Garden Suburb. The design is carried out entirely in brick, with tiled roofs and a great lead-covered spire. The appearance of the large windows to the aisles which break through the roof is well shown by the photograph on page 89. There is, it will be noticed, a pierced lead cresting to each. Within, the roof framing is carefully executed in oak, and is a very interesting piece of modern construction on old lines.

Sculpture, Glamorgan County Hall.

On either side of the stylobate to the façade of the new Glamorgan County Hall in Cathays Park, Cardiff, are two groups symbolical of local industries—"Mining" and "Navigation." We illustrate the latter on the Centre Plate in this issue. It will be seen to be a most vigorous piece of sculpture by Mr. Albert Hodge, fine in conception and excellently worked out.

"RECENT ENGLISH DOMESTIC ARCHITECTURE."

THE series of special issues dealing with recent English domestic architecture which have been published by the "Architectural Review" form a most admirable record, and are full of delightful examples. The fifth has just been published (price 7s. 6d.), and should be obtained by all who have an interest in the subject.

In this volume we find a most attractive collection of photographs showing exteriors and interiors of houses by the majority of the most talented men in the profession, and as the views are accompanied in every case by a plan or plans reproduced to a good size, the book has a very practical value. As frontispiece is "A Little Winchester Rose Garden," delightfully reproduced in colour from a drawing by Miss Beatrice Parsons. The series of plates begins with new houses by Mr. Ernest Newton, and then follow works by Mr. Reginald Blomfield, Mr. E. Guy Dawber, Sir Robert Lorimer, Mr. Oswald P. Milne, Mr. Edwin L. Lutyens, Mr. E. Turner Powell, and many other architects of distinction. Altogether there are 200 pages of illustrations, and as these are all most admirably reproduced, and include many of outstanding interest, the volume will appeal to all who wish to keep abreast with the best work that is being done.

CORRESPONDENCE.

*The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.
Correspondents are asked to be brief, and to write on one side only of the paper*

*The London Plasterers' Strike and its Portents.
To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.*

SIRS,—The writer of your article under the above heading (issue of July 9th, page 28) appears to be unduly severe upon the Conciliation Scheme when he remarks, "that carefully elaborated as the system of Conciliation Boards is, and successful as the system has been during the long cycle of lean years, when there was no incentive to strike, it appears, under a real test, to have fallen like a house of cards."

In order to estimate fairly the meaning of what has occurred in London, it must be realised that the London employers and the London operatives, in their united wisdom, decided, from the outset of the National Schemes of Conciliation, that they preferred to manage their own affairs and to stand aloof from the National Conciliation Schemes.

Now, it is a feature of the Conciliation Schemes which lies at the root of such success as they have had that if a dispute cannot be adjusted by the local provisions for Conciliation, it must be referred to Conciliation Boards drawn from larger areas, and that until those Conciliation Boards, drawn from areas unaffected by local feeling, have tried to settle the dispute and failed, no strike or lock-out may be permitted by the Central Associations on either side.

The secret of the whole matter lies in the removal of the consideration of the dispute to a calmer atmosphere than that which usually prevails at the centre of disturbance.

The decision of London to remain outside the Conciliation Scheme incidentally deprived the parties of the advantages referred to. It is probable that had the London employers and operatives been parties to the National Schemes there would never have been a strike at all. It is therefore hardly fair to say that the Conciliation Schemes have collapsed because the purely local conciliation arrangements of London failed.

It is true, however, that strikes have occurred in various parts of the country which appear to reflect upon the Conciliation Schemes. But two reservations must be made: First, that the Conciliation Schemes only apply in those localities where there are branches of the National Federation of Building Trades Employers; therefore, the operatives are free to strike elsewhere, except where a Federated employer is concerned. Many of the provincial strikes, therefore, represent the absence of the Conciliation Schemes, not their failure. Secondly, a few strikes have occurred where there are Federation branches. These appear to be due broadly to slackness of either or both of the local parties concerned in setting up or working the local machinery of Conciliation. In some cases there has been activity, but it has led to mismanagement of the dispute which has subsequently degenerated into a strike. Sometimes the clash of individualities among the officials concerned has embroiled the parties. Such cases are usually solved eventually by the parties realising their mistake and retracing their steps sufficiently to allow of their differences being adjusted by the Conciliation machinery. Such has been the case so far in the provinces, and a fair appraisal must place the blame for failure on the litigant parties, not upon the Conciliation Schemes, which ultimately settle their differences, even after they have fallen out to the extent of a strike.

The position is undoubtedly a difficult one, due to the impatience of the workpeople with methods of diplomacy when they are in a hurry to get an advance of wages, but is being handled with tact and patience

by those responsible for the administration of the Conciliation Schemes: and therefore I think it may be claimed that, far from falling like a house of cards, the Conciliation Schemes are justifying their existence in a remarkably successful way under circumstances of unusual difficulty.

The effective working of any Conciliation Scheme depends upon whether there is a real desire on both sides to settle the dispute by some fair compromise. It is sometimes the case, however, that one or other, or both sides, are spoiling for a fight, and really prefer a test of strength if it does not hit them too hard. But, even so, in the end their differences have usually to be adjusted either by the Conciliation Schemes or the Board of Trade in that very spirit of compromise which was at first rejected.

A. G. WHITE, Secretary,

The National Federation of Building Trades Employers of Great Britain and Ireland.

[We are glad that our casual observation on the apparent failure of the Conciliation Scheme to prevent strikes has drawn so lucid and authoritative an explanation from Mr. White. So many strikes, in various parts of the country, having immediately succeeded—or perhaps preceded—the wave of prosperity to which "labour unrest" seems to be a constant concomitant, it was a natural inference that the Conciliation Schemes must be falling short of the perhaps over-sanguine claims that had been made for them; and we are delighted to be reassured, on Mr. White's unimpeachable authority, that the machinery of Conciliation has by no means broken down.—EDS. A. AND B.J.]

"The Royal Palace of Budapest."

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Having been travelling in remote parts of Hungary, I have but recently seen your excellent article on the subject indicated by the above title. [July 2nd, page 5.]

I hope that you will not consider it too late for me to point out that the statement on p. 7, "It was not until the re-establishment of the Austrian Hungarian Constitution in 1867, etc.," is not in accordance with fact.

The Constitution which was then revived was that of Hungary, which had endured for many centuries, while Austria had been under a system of absolute government. As the Hungarians declined to enter into an alliance with a nation less free than themselves, Constitutional privileges were then conferred on Austria, which was thus raised to the political level of Hungary.

Notwithstanding this nominal equality, there are points of difference in the two Constitutions, which show that the limitations of the Monarch are greater in Austria than in Hungary.

It should always be remembered, when the political relations of the two States are being considered, that there is no Constitution in existence which is their common possession.

The Empire of Austria and the Kingdom of Hungary are independent States in friendly alliance, the one acknowledging the sway of His Majesty Francis Joseph as Emperor and the other, with equal loyalty, yielding allegiance to the same august personage as King.

W. H. SHRUBSOLE.

Pöstvé, Hungary.

[Our interest in the subject is, of course, purely architectural, and Mr. Shrubsole's letter has but little material relation to that aspect. He speaks with high authority, however, and a debatable point having been raised in the article to which he has so courteously directed attention, it would be manifestly unfair to exclude his communication on that ground; although any discussion of Constitutional questions is clearly beyond our scope.—EDS. A. AND B.J.]



THE RAGLAN BARRACKS, DEVONPORT.

(See page 83.)

Photo: Pegelly.



Garden Front.



Entrance Front.

MODERN DOMESTIC ARCHITECTURE. HOUSES OF INTERMEDIATE SIZE. XVI.—HOUSE AT ALDERLEY
EDGE, CHESHIRE. PERCY SCOTT WORTHINGTON, M.A., F.R.I.B.A., ARCHITECT.

(See page 83.)

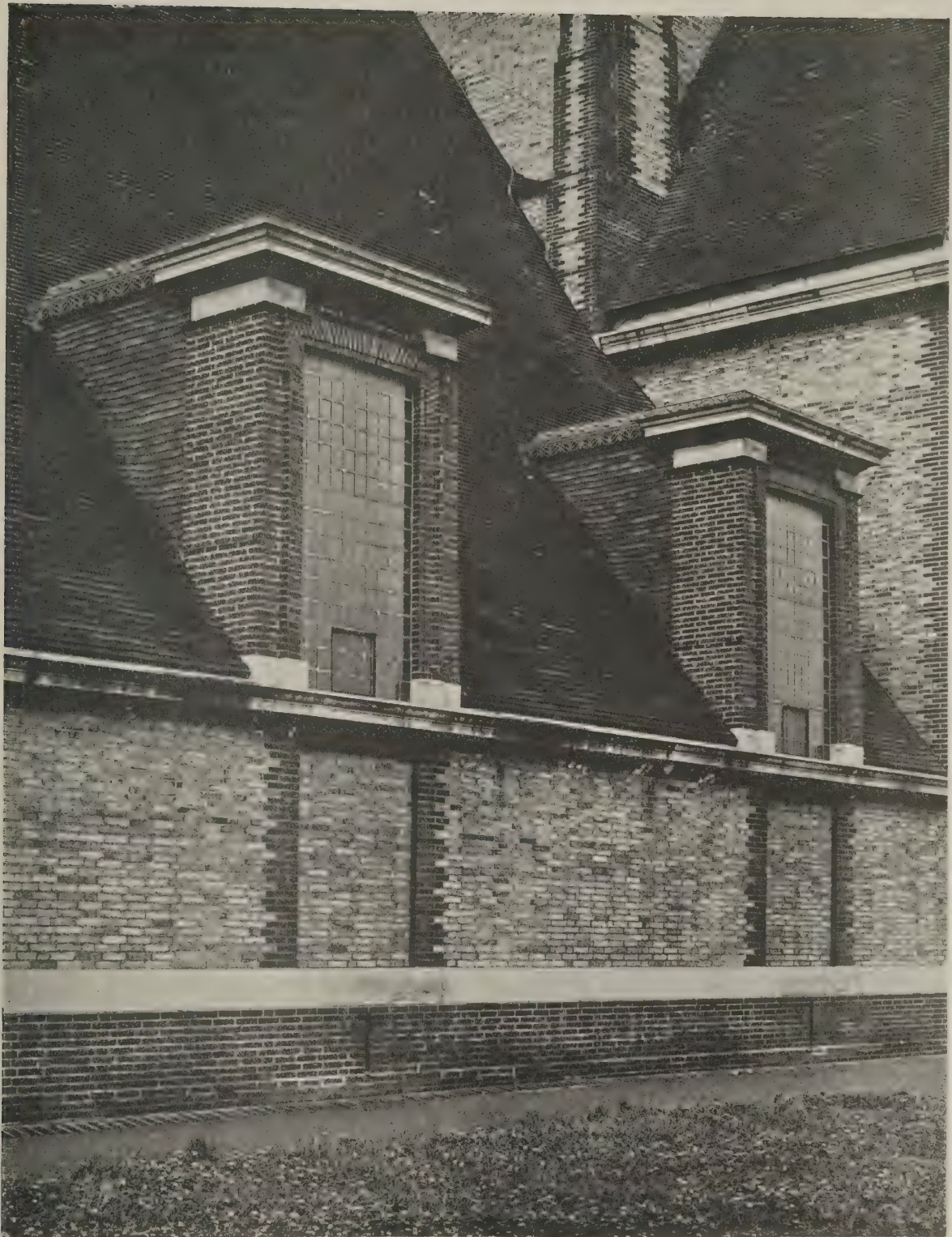
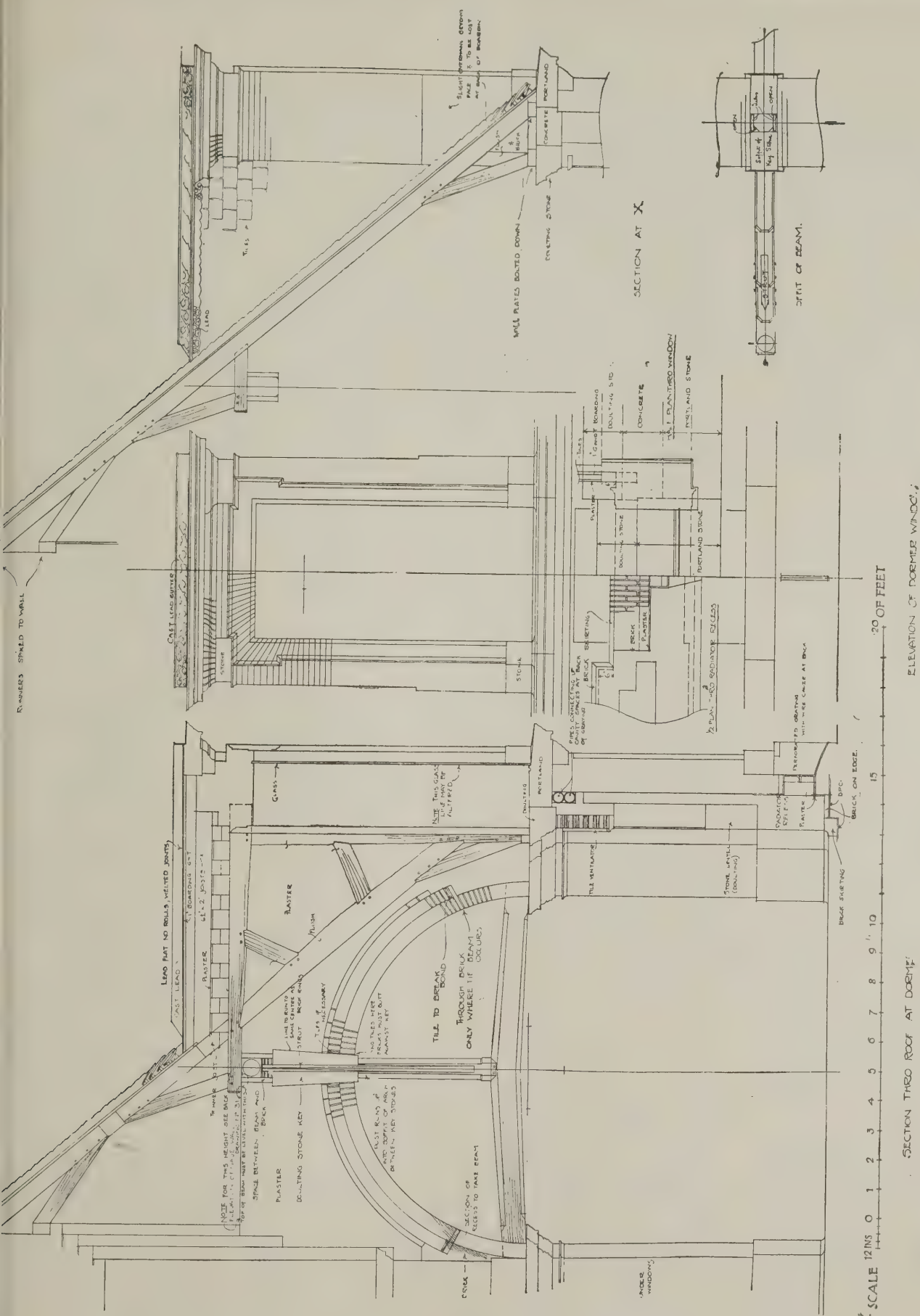


Photo: Architects' and Builders' Journal.

ST. JUDE'S-ON-THE-HILL, HAMPSTEAD GARDEN SUBURB: DETAIL OF WINDOWS TO SOUTH AISLE.
EDWIN L. LUTYENS, A.R.A., F.R.I.B.A., ARCHITECT.

(See page 83)



WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS—XXXII. DETAIL OF SOUTH AISLE, ST. JUDE'S-ON-THE-HILL, HAMPSTEAD GARDEN SUBURB.

EDWIN L. LUTYENS, A.R.A., F.R.I.B.A., ARCHITECT.

(See page 83)

THE SUBSTRUCTURE OF THE NEW COUNTY HALL, LONDON.

BY J. R. LEATHART.

[Specially Contributed.]

THE work upon the new County Hall for London (Mr. Ralph Knott, architect; Mr. W. E. Riley, consulting architect) is steadily proceeding, the substructure being now finished, while operations upon the superstructure are in progress. The following brief description of the site acquisition and the method of construction of the substructure will be of interest.

Acquirement of the Site.

It may be recalled that the London County Council decided to acquire, after the rejection of many schemes, the site situated on the Surrey side of the River Thames, adjoining Westminster Bridge, at a total cost of £600,000. The size of its area was further increased by the reclamation of about 200 ft. of foreshore along the river frontage. Demolition and clearance of existing factories and warehouses followed, and the embankment wall was begun in January, 1909.

The Embankment Wall.

The wall, which will have a total length of 800 feet when completed, was erected under the direction of Mr. (now Sir) Maurice Fitzmaurice, the Council's chief engineer, and forms a continuation of the existing embankment fronting St. Thomas's Hospital, to which it is similar in architectural character. It is constructed of 6 to 1 Portland cement concrete without reinforcement, faced with grey Aberdeen and Cornish granite, and has bronze enrichments and lamps similar in detail to those used on the existing embankment. The central pylons and steps from the terrace-level to the water were designed by Mr. Knott. The bronze sea-horses' heads which support the solid bronze chains on the pylons are the work of Mr. Gilbert Bayes, sculptor. On account of the recent proposals to deepen the bed of the river below Westminster Bridge, it was found necessary to sink the foundations of the wall to a total depth of 35½ ft. below Trinity high-water mark, and provisions were accordingly made for the construction of a temporary dam as a preliminary to the work of excavation. This was of the type known as a "single-pile dam," and was formed of whole timber piles 14 ins. square in section. Behind the wall a series of concrete vaults were built, upon which the public terrace will be laid to an average width of 43 ft. Of the wall 588 ft. was built by Messrs. Price and Reeves at a total cost of £58,000.

Foundations.

The total area of the site is approximately 6½ acres, and the subsoil consists of 12 ft. of made ground, 7 ft. of Thames mud and 13 ft. of ballast, under which occurs the London clay. Owing to these characteristics, a type of raft foundation with enclosing retaining walls was decided upon. This is constructed of 6 to 1 Portland cement ballast concrete, laid in five 12-in. layers to a total depth of 5 ft., over the entire area of the site on the top of the ballast stratum. A 2 to 1 Portland cement damp-course is laid between the first and second layers, and all the external faces of the retaining walls are rendered to a thickness of 1-in. in a similar manner. All aggregate to the concrete for the foundations is specified to pass a 2-in. ring. Retaining

walls are built of 6 to 1 Portland cement concrete, varying in thickness from 10 ft. at the base to 4 ft. at the top, and extend to an average depth of 23 ft. below the roadway level. The work of the foundations was completed to the greater portion of sections A, B, and C, by Messrs. F. and H. F. Higgs, at a total cost of £46,900.

Subdivision and Allocation of Building.

The general disposition of the building in relation to the site may be summarised as follows:—Its longitudinal axis is approximately due north and south, and runs parallel to the river. The plan may be said to be rectangular, having two short ends of unequal length, with frontages to the Belvedere Road (east), and the River (west) of 750 ft.; to Westminster Bridge Road (south) of 262 ft.; and to the north side of 350 ft. The building is divided, for the purposes of facility in construction and convenience in identification, into four sections, A, B, C, and D; one of which, D, is at the present time occupied by Messrs. Holloway's building works. Section A occupies the central portion of the site, section B the wing southward of this, extending to the Westminster Bridge Road; and section C, the wing northward of section A. Messrs. Holloway's wall forms the northern boundary of the present restricted site. The arrangement is shown in the accompanying plan. Each section is further subdivided into blocks, numbered 1 to 5 in section A, 6 to 9 in section B, 10 to 12 in section C. Reference will be made to these subdivisions or blocks in dealing with the construction of the building. The substructure, which extends from the raft to the roadway, consists of two floors—sub-basement and basement; the latter 12 ft. 6 in. above raft level. From the surface of the raft to the ground floor level is 24 ft. 6 ins. The main points of interest as to the allocation of these floors are given here:—

Section A, Sub-basement:—The whole of this floor is to be used as departmental stores and strong rooms, with the exception of Block 2, which is allocated to the boiler-house, with coal bunkers adjoining, pump-room, and ventilating plant; and Block 3, which is devoted to the staff club-room and rifle ranges, 25 and 50 yards in

length. There are four staircases, one at each angle, with lifts and motor rooms adjoining.

Section B is similarly apportioned to departmental strong and storage rooms, and has two staircases with lifts and motor rooms. There are three fan chambers in this section, having an average area of 480 sq. ft. each.

Provision for a large coal storage is made in Section C, which also contains the chemist's department stores. Section A, basement contains storage and strong rooms, electrical controls, accommodation for electric lighting plant, ventilating plant, heating apparatus, and staff lavatories.

Section B is devoted to messengers' common rooms, and staff rooms, telephone rooms, carpenters' workshop, and clerk of works' room. The only room in the substructure to be treated architecturally occurs in this section, namely, the muniment room, which is finished in plaster panelling.

The cartway from Belvedere Road occupies the greater portion of Section C, and bicycle stores and staff lavatories take up the remainder.

All sub-basement corridors (9 ft. 3 ins. to 9 ft. 6½ ins. wide) are provided with trolley lines to facilitate circulation to the various store and strong rooms.

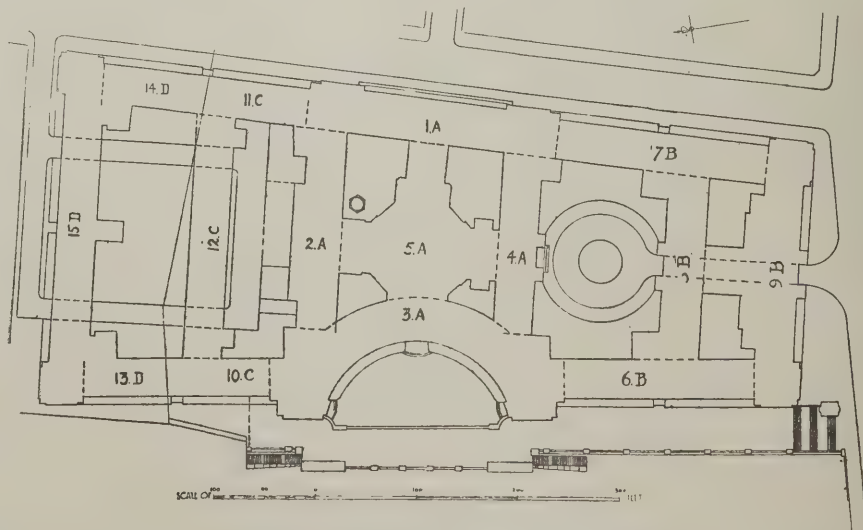
The whole of the sub-basement floor is lighted, where possible, by means of lantern lights.

Construction of Substructure.

Immediately before the completion of the raft, tenders were invited for the construction of Section A of the substructure, that submitted by Messrs. Charles Wall, Ltd., of £47,738, being accepted, for this portion only. It was decided later to proceed with the remaining two sections, B and C, and Messrs. Wall were instructed to construct these sections on the basis of prices included in the original contract.

Constructional Principles.

The building is not a steel-framed structure, neither is it wholly reliant upon brickwork and masonry for its stability, but rather is it a combination of both; it may be described as a composite fire-resisting structure. The method of



LONDON COUNTY HALL: BLOCK PLAN.



GLAMORGAN COUNTY HALL, CARDIFF
ALBERT HODGE, SCULPTOR. E. VINCENT PHOTOGRAPHER



GROUP SYMBOLISING "NAVIGATION."

AND THOMAS A. MOODIE, ARCHITECTS.



Photo: Architects' and Builders' Journal.

THE ERECTION OF THE LONDON COUNTY HALL: VIEW FROM WESTMINSTER BRIDGE SHOWING PRESENT
CONDITION OF WORKS.

meeting and carrying the loads of the superstructure has largely been influenced by the disposition of the allocation, and, where area is restricted and space a paramount consideration, then steelwork construction in the form of stanchions has been adopted. Wherever more area for the supporting members is permissible, brick piers have been used. These generally are of blue Staffordshire bricks, further to reduce the pier area. Thus, Block 2, Section A, is utilised as the boiler-house and ventilating centre, and the importance of preserving space with the minimum of obstruction is of the first consequence. Stanchions have been used here to carry the loading of the superstructure. Again, in Block 3, Section A, the members' terrace above has been carried in a similar manner. In the majority of instances, however, brick piers have been designed to carry the loading of the superstructure. Although by Act of Parliament the work is exempt from the supervision of the district surveyor and the laws of the London Building Act, their requirements have generally been observed, and the safe working loads which have formed the basis of calculation for the various types of brick piers are as follows:—

Blue brick, 12 tons per foot super., Stock brick 8 tons per foot super. With the form of raft foundation adopted, continuous and even distribution of the weight of superincumbent loads is secured, and all walls, therefore, are without footings of any description.

Setting Out.

The walls and piers are set out in cement lines on the surface of the raft, and the outline of each is laid with one course of bricks. This enables work to proceed simultaneously over the whole portion of the site set out.

Brickwork.

All brickwork is laid in three parts Hails-

ford sand to one part Portland cement mortar, machine mixed, and is slow-setting; during the winter months, however, medium setting cement is allowed. No grouting is permitted in bricklaying, each course being specified to be laid in mortar. The general walling, of English bond throughout, is built of London stocks, faced (where a fair-face unplastered finish to the walls is required), with Fletton bricks and bull-nosed gault angles. All piers designed to carry upwards of eight tons per square foot are built of blue brindled bricks, with pressed blue brick facings. All internal areas are faced with white-glazed bricks, and all lavatories, etc., have a salt-glazed brick dado 4 ft. high, with white-glazed bricks above. A $\frac{1}{2}$ -inch damp-proof course of natural rock asphalt, containing 10 per cent. of bitumen, is laid to all walls and piers at a uniform level of 1 ft. 6 in. from the raft surface.

Generally the external walls of the various sections vary from 3 ft. to 4 ft. $1\frac{1}{2}$ in. or 4 ft. 6 in. in thickness, and internal walls from 1 ft. 6 in. to 2 ft. $7\frac{1}{2}$ in. The brick piers to the pavilions of Section A are of vast size, those to Block 1 requiring 900 bricks to each course, and those to Block 3 1,400 bricks to every course.

The æsthetic consideration of the outcome of structural utilitarianism may be of some interest at this point. Great masses of well-built brickwork are impressive by reason of the sense of strength and solidity they create, and such vast piers and walls as are built to carry the many thousands of tons weight of superstructure of the County Hall have a greater element of beauty in their straightforward simplicity than many strivings of more architectural significance.

Granite Work.

Blocks 4, 6, 7, and 8 face the members' entrance courtyard, and as this latter forms the main approach to the Council Chamber

from Westminster Bridge Road, through a carriageway, it has been architecturally treated in harmony with the external façades. From the area levels of the basement floor upwards to the main string at first-floor level, the walls to this courtyard are faced with granite from the Penryn district. The courses are laid alternately 9 in. and $13\frac{1}{2}$ in. on bed, and have an average depth of 2 ft. 3 in. on face. Bonders are provided (one to every 30 ft. of superficial area), and are carried to within $4\frac{1}{2}$ in. of the internal wall face. The sills, heads, and jambs have a depth of 1 ft. 6 in. The face of the granite work is scabbled with a $\frac{3}{4}$ -in. irregular drafted margin to each block.

Steelwork.

Structurally, the steelwork, which is of the best British manufacture, is used in combination with the brickwork. In Block 2, Section A, however, steelwork is exclusively used in the form of stanchions and girders, while brickwork forms an external encasement only. The specified tensile stresses are from 28 to 32 tons per square inch, and all calculations (for which Messrs. Whitaker, Hall and Owen, structural engineers, are responsible), are made on this basis. All main stanchions have grillage foundations on the raft surface, the sizes of which vary in accordance with the different loadings. Connections between girders and stanchions are made with gusset plates, angles, etc., riveted up at the works, and bolted together on the site. The importance of the protection of all steelwork with concrete encasement from external agencies, has been recognised, and all stanchions, grillage foundations, girders, and joists, have a minimum of $1\frac{1}{2}$ -in. of 5 to 1 Portland cement concrete entirely surrounding them. No special or patented system of fireproof flooring has been adopted, but the ordinary method of main constructional beams at 10 ft. or

12 ft. centres, with small intermediate filling joists at 3 ft. centres, has been used. The size of these "fillers" varies with the span, but the general dimensions are 5 in. by 3 in., and 6 in. by 3 in. All joists and beams are placed at a depth of 3 in. from the finished floor level to the upper surfaces of the top flanges, and have a total encasement of 2 in. of concrete and plaster to the finished lower faces.

The concrete to the floors and stanchion encasing is composed of 5 to 1 Portland cement broken brick concrete, with aggregate to pass a $\frac{3}{4}$ -in. ring.

All steelwork is allowed to rust after being erected, and then thoroughly cleaned and the rolling scale removed before being covered with neat cement grout.

Staircases.

All staircases are built of concrete, and each step has a tee-iron core. The steps are pinned into the walls and finished with a 5-in. solid concrete close outer string. Teak treads, plugged to fixing blocks embedded in the concrete, form the finishings to the staircases, and wrought iron balustrades with oak handrails are fixed to the concrete outer strings.

Casements.

Steel casements fitted to a uniform rebate of $\frac{3}{4}$ in. are to be used throughout the sub-structure, and lantern lights, which occur in the asphalt-covered concrete flats to all areas at basement level, are also of steel construction, fixed to concrete curbs 6 in. above flat level.

General Internal Finishings.

The more important rooms of the sub-structure are plastered throughout; but, generally, such rooms as stores, fan-chambers, calorifier sections, and all corridors are finished with fair-face Fletton bricks, having struck joints, and are lime-whitened throughout. Lavatories are lined with glazed bricks, and the boiler-house in Block 2 is finished internally with a salt-glazed brick dado 7 ft. high, and is lined above this with white-glazed brickwork. All ceilings and soffits to beams, faces of stanchion encasements, and lintel soffits, are covered for a thickness of not

less than $\frac{1}{2}$ in., with 3 to 1 Portland cement rendering, and distempered. Floors in general instances are laid with granolithic on the surface of the concrete; the exceptions to this form of floor covering are used in certain storage rooms, in the rifle range, and club room, and in the various workshops. In these instances wood block flooring on $\frac{1}{2}$ -in. cement screeding is fixed.

Drainage.

The whole of the iron drainage system to the completed building will be suspended from the sub-basement ceiling.

Heating.

The system adopted provides for the direct heating of all rooms, corridors, etc., by radiation from hot-water radiators, in addition to the open combustion heating of fireplaces in the main rooms. The boilers (five in number, one of which is in reserve) working at 60 lb. per sq. inch pressure, supply the six calorifier sections distributed throughout the basement in sections A, B, and C; and these circulate the steam at low pressure through a ring main carried round the building. From this main, flow and return pipes communicate with each radiator and coil. It is estimated that each calorifier section or chamber containing a set of three calorifiers will satisfactorily heat three blocks. Condensation water is arranged to pass through the radiators on its return to the condensation receivers. All piping is laid on the "drop system," with horizontal mains. Expansion tanks are to be provided in the roof—one for each calorifier chamber and communicating directly therewith.

Ventilation.

The extract system of ventilation will be adopted, with large low-velocity centrifugal fans placed in the sub-basement in ten fan-chambers. Each fan-chamber is adjacent to an air shaft of 40 sq. ft. area (extending the whole height of the building), divided into two sections—a down-take shaft connected with ventilating ducts 2 ft. deep, placed immediately below each floor, and extending the entire length of all corridors; and an upcast shaft to discharge through the roof. Fresh air is admitted to all rooms, corridors, etc.,

through regulated inlets behind each radiator communicating directly with the external air. The air after circulation is extracted through gratings placed near the ceiling level of the rooms into the ducts before-mentioned, and thence to the down-take shafts to be re-discharged by means of the fans to the roof outlets.

IN PARLIAMENT.

(By Our Press Gallery Representative.)

The Roof of Westminster Hall.

Westminster Hall for some weeks past has been in the hands of workmen, and the great space is full of timber scaffolding. In the House of Commons on the 16th inst. Sir J. D. Rees asked Mr. Wedgwood Benn, as representing the First Commissioner of Works, whether he could give the House any information regarding the repairs in progress, and whether the roof of the building was in danger.

Mr. Wedgwood Benn said the First Commissioner regretted that he was not yet in a position to give the House any definite information as to what repairs might be necessary to the roof of Westminster Hall. The examination was proceeding and a complete survey was being made, but no repairs had yet been undertaken. The roof was not in immediate danger.

Regent Street Quadrant.

Mr. Boyton asked Mr. Runciman, President of the Board of Agriculture, whether a design for the Regent Street Quadrant had been prepared for completing the rebuilding, and whether, in view of the fact that the Quadrant from its original conception had had an architectural unity and dignity which had given an especial character and interest to that part of London, these facts had been an instruction to the architect or architects entrusted with the design.

Mr. Runciman replied that a design was submitted a short time ago by architects acting for lessees of premises in the Quadrant, but it was not considered by the Commissioners of Woods to be satisfactory, and the matter was receiving further consideration. No architect had been entrusted by the Commissioners of Woods with the design, and no special instructions had been issued, but the recommendations of the recent Committee on the subject of the completion of the Quadrant were known to the architects who submitted the design above mentioned.

Mr. Boyton asked if an architect or architects had been appointed to carry out the findings of the Committee.

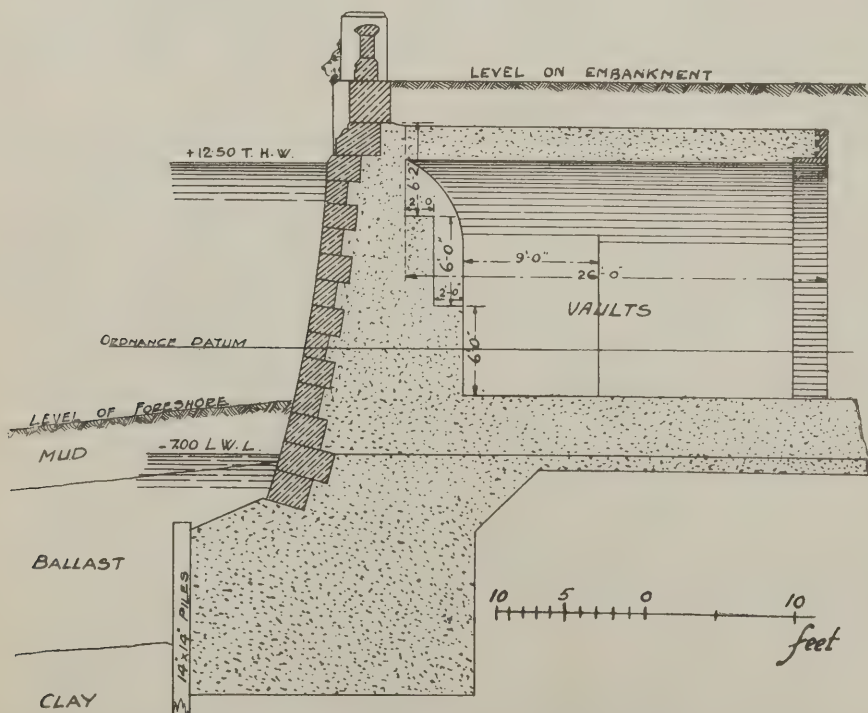
Mr. Runciman said no architect or architects had been appointed for that purpose.

Mr. Boyton asked whether, when they were appointed, the design would include the County Fire Office and the block of buildings facing Piccadilly Circus and Piccadilly, or would it be prepared in accordance generally with the Committee's report.

Mr. Runciman said he could not answer that without notice.

Mr. Fell asked for a promise that nothing would be done until after the matter had been debated in the House of Commons.

Mr. Runciman said that if the hon. member meant that no appointment of architects was to take place until after the matter had been debated he was afraid he could not give that promise. Nothing drastic would be done without full public notice. If there was any desire to see the plans they would be exhibited in the



LONDON COUNTY HALL: SECTION OF EMBANKMENT WALL.

members' tea room before being finally accepted.

Victoria and Albert Museum.

Mr. Grant asked the President of the Board of Education whether he could now state an approximate date when the stained glass windows which were removed for repairs eighteen months ago would be replaced on the north-western staircase of the Victoria and Albert Museum, and when the restoration of the ceiling decorations and the re-painting of the walls, in accordance with the original scheme of colouring, of the lecture theatre gallery, containing the art collection known as the Jones Collection, would be finished and this gallery be opened to the public.

Mr. Joseph Pease, in a printed reply, stated: The Committee appointed to advise as to the treatment of the staircase recommended that should the stained glass windows be found to interfere too much with the light they should be replaced with windows of a lighter design. One of the windows has been temporarily replaced on the staircase, and observations are being taken as to its effect upon the light. Arrangements have been made for the restoration of the ceiling, but I cannot say when the re-decoration will be complete, as the Committee found themselves unable to make recommendations until the purpose for which it was to be used is settled. I asked the Advisory Council for the Victoria and Albert Museum to advise me, and they reported in favour of the allocation of the gallery to the Jones Collection. I have decided to adopt the Advisory Council's recommendations, and am in communication with the Office of Works with regard to the best means of carrying them out.

THE L.C.C. DRAFT REGULATIONS FOR REINFORCED CONCRETE.

(Continued from p. 73, No. 966.)

Working stresses.

35.—Except as further provided for in pillars, the permissible working stresses in concrete shall not exceed the following—

Proportion by volume.

Stresses in concrete.	Cement.			Sand.			Coarse material.		
	1	2	4	1	1½	3	1	1	2
	Pounds per square inch.			Pounds per square inch.			Pounds per square inch.		
Direct compressive stress	500			550			600		
Extreme flexural compressive stress in beams	600			650			650		
Grip or adhesion between concrete and steel bars hooked at both ends	80			80			80		
Grip or adhesion between concrete and steel bars otherwise effectively anchored at the ends	60			60			60		
Shearing stress ...	60			60			60		
Tensile stress ...	nil.			nil.			nil.		

The values of the direct compressive stress for intermediate proportions may be estimated from the following equation—

$$c = 700 - \frac{100}{3} V$$

where V equals the volume of the sand plus that of the coarse material, per unit volume of cement.

The values of the extreme flexural compressive stress for intermediate proportions may be estimated from the following equation—

$$c = 450 + \frac{900}{V}$$

If V is less than $4\frac{1}{2}$, the stresses in the last column shall not be exceeded.

36.—The permissible working stress in the steel shall not exceed the following—

Stresses in mild steel complying with the British Standard Specification.

Pounds per square inch.

Compressive stress . . . *m* times the stress in the concrete immediately surrounding the steel (the value of *m* being obtained in accordance with regulation 48)

Direct tensile stress in longitudinal members ...

16,000

Tensile stress in web-reinforcement ...

12,000

Shearing stress ...

12,000

37.—Provision shall be made for the stresses due to eccentric loading.

38.—The algebraic sum of the stresses in any member subject to eccentric loading shall not exceed the maximum permissible direct stress.

39.—The term "combined stresses" when used in these regulations shall mean the algebraic sum of all the stresses, eccentric and direct, and any other stresses due to any cause or causes.

Neither the steel nor the concrete shall be subjected to combined stresses which together exceed the maximum permissible direct stress on the steel or on the concrete, as the case may be.

40.—Every member which can be subject to either tensile or compressive stresses shall be designed and proportioned to resist the maximum for each stress.


Also see regulation 14.

41.—All joints in or between reinforced concrete members shall be designed and arranged so that the stresses which may come upon them shall be within the limits allowed by these regulations.

42.—The concrete may be assumed to take up a shearing stress of 60 lbs. per square inch, but any remaining shear shall be provided for by the reinforcement.

The vertical shear taken by the concrete shall only be taken on the web area between the neutral axis and the centre of pressure.

43.—(a) All tensile reinforcement shall be hooked or otherwise effectively anchored at each end.

(b) Hooks at the ends of bars shall be of a  form, and shall have an inner diameter of at least five times the diameter of the bar; or when the hook fits over a main reinforcing bar the diameter of the hook may be equal to the diameter of such bar.

(c) When the bars are anchored at each end by fish-tailing or other means, not being a hook, the width across the fish-tail or other anchor shall not be less than twice the normal diameter of the bar.

Grip length.

44.—The grip length or adhesion length of a bar embedded in concrete shall be

measured along the bar from the inside of the hook or the nearer end of the other anchorage to any given cross section.

45.—The grip or adhesion length (in inches) shall not be less than the following—

In terms of	Condition of ends.	Grip or adhesion lengths.		
		Circular bar.	Square bar.	Rectangular bar.
Intensity of tensile stress	Hooked	$\frac{td}{320}$	$\frac{td}{320}$	$\frac{tbd}{160(b+d)}$
Total tension on the bar ...	Hooked	$\frac{T}{250d}$	$\frac{T}{320d}$	$\frac{T}{160(b+d)}$
Maximum tension on bar (16,000 lbs. per square inch)	Hooked	$\frac{50d}{100bd}$	$\frac{50d}{100bd}$	$\frac{100bd}{(b+d)}$
Intensity of tensile stress	Otherwise anchored	$\frac{td}{240}$	$\frac{td}{240}$	$\frac{tbd}{120(b+d)}$
Total tension on the bar	Otherwise anchored	$\frac{T}{190d}$	$\frac{T}{240d}$	$\frac{T}{120(b+d)}$
Maximum tension on bar anchored (16,000 lbs. per square inch)	Otherwise anchored	$\frac{70d}{150bd}$	$\frac{70d}{150bd}$	$\frac{150bd}{(b+d)}$

where

b = the breadth of the bar in inches,
d = the least diameter of the bar in inches.

T = total tension on the bar in pounds.

t = the tensile stress, in pounds per square inch, at the given cross section.

In the case of a bar having mechanical bond the least diameter of the bar may be measured from outside to outside of the transverse projections provided—

(a) That the transverse projections are not further apart (centre to centre) than twice the normal diameter of the bar;

(b) That the height of such projections above the normal surface of the bar shall be at least $\frac{1}{16}$ th of an inch on all bars exceeding one half inch in diameter and $\frac{3}{32}$ rd of inch on all bars not exceeding one half inch in diameter.

Modular Ratio.

46.—The term "modular ratio" (*m*) means the ratio of the elastic modulus of steel to the elastic modulus of concrete.

47.—The elastic modulus for steel in tension or compression shall be taken at thirty million pounds per square inch.

48.—The modular ratio for steel and concrete shall be taken as follows—

Proportion by volume.			Modular ratio. <i>m</i>
Cement.	Sand.	Coarse material	
1	2	4	15
1	1½	3	11
1	1	2	8

PART III. BEAMS.

49.—The term "beam shall include any beam, girder, lintel, bressummer or cantilever, or any other similar member carrying transverse loads.

50.—The least diameter or thickness of the longitudinal bars in beams shall not be less than one quarter of an inch.

51.—All other reinforcements in beams shall be at least one eighth of an inch in diameter or thickness.

52.—There shall be a distance of at least one inch horizontally and one half inch vertically between the bars in beams except at joints or at points where the

bars are in direct contact and transverse to one another.

53.—The distance between the bars of the tensile reinforcement in a beam shall not be greater than six inches.

54.—Wiring used in beams for the purpose of holding bars in position shall not be regarded as reinforcement.

Compressive reinforcement.

55.—Where compressive reinforcement is provided in beams the cross sectional area of the beam may be assumed to be increased by fourteen times the cross sectional area of the steel in compression.

56.—Where compressive reinforcement is provided and calculated to take part of the compression it must be anchored by bars extending through the middle third of the effective depth of the beam.

57.—The anchors shall not be further apart (centre to centre) than the effective depth of the beam, and not further apart than twenty diameters of the anchored bar.

In cases where the compressed concrete is hooped at the ends of a beam, the stress within the hooped core, for the distance of one quarter the span of the beam at each end, may be taken at the same value as for a core in a pillar similarly hooped. In this case the compressive stress in the concrete outside the hooping shall not be taken into account in estimating the compressive resistance.

Shear reinforcement.

58.—Subject to the regulation numbered 42, all beams shall be provided with adequate shear or web members and such shear or web members shall—

(a) Be spaced according to the distribution and intensity of the shearing stresses, but the distance from centre to centre of the shear or web members at any part of the beam shall not exceed five-sixths of the effective depth of the beam.

(b) At least extend from the centre of the tensile reinforcement to the centre of pressure in the concrete under compression.

(c) Be passed under or round the tensile reinforcement or be otherwise secured thereto.

(d) Be hooked or anchored at both ends, in the same manner as for tensile reinforcement.

59.—The shear or web members may be regarded as anchors under the regulations numbered 56 and 57, provided they comply therewith.

Splays and brackets at ends of beams and bracketed work.

60.—Where the end of a beam is splayed for the purpose of increasing the resistance moment, such splayed work shall extend along the beam for a distance of one fifth of the span.

61.—In cases where bracketed work in reinforced concrete is provided in the structural design to carry loads, and to act as a cantilever, it shall be reinforced sufficiently to provide for the stresses due to such loads.

Kingsway Sites.

It is proposed by the London County Council to accept an offer made by Messrs King and Arnell of £2,000 a year for a ninety-nine years' lease of a site in Kingsway, having frontages of 80 ft. in Kingsway and 80 ft. in Kean Street.

BUILDING CONSTRUCTION FROM THE ARCHITECT'S STANDPOINT.

Books on building construction show more than the usual marked tendency of technological manuals to degenerate into mere class-books, useful enough for that purpose, but possessing no further recommendation. The two volumes of "The Architects' Library" that are devoted to the subject are quite free from this taint of the class-room. They discuss building construction in a more amplified way, and mainly from the architectural point of view. Yet it is doubtful whether the two large volumes are quite adequate for the really comprehensive treatment of a subject which grows rapidly more and more complex and expansive. This second and concluding volume deals with reinforced concrete in six chapters by Mr. John H. Markham, A.R.I.B.A., who, adding a seventh on fire-resisting floors, a chapter on glazing, and another on plastering, has written not far short of half the book; with roof coverings, with external plumbing, with timber, with joinery, and with painting and decoration. At first one is rather tempted to say that each of these subjects demands a separate volume, but, on reflection, it is obvious that such an enlargement of the scale would defeat the purpose of the book, which, we take it, is not to provide independent treatises for specialists, but to give the architect a general conspectus of operations with which he must be sufficiently familiar to superintend them with discriminating knowledge.

Mr. Markham's chapters on reinforced concrete form an excellent introduction to a subject which too many architects shirk. Their unwisdom in evading it should be plainly evident from its position, and the large amount of space it occupies, in the forefront of this volume; and the fact that the matter is so clearly expounded by an architect, and not by an engineer or a non-architectural specialist, should give confidence to many another architect not only to master these admirable chapters, but to pursue the subject in the special treatises of which a list is usefully appended by the author. This section is copiously illustrated, but in some instances the figures are rather confusingly crowded together.

Mr. Edwin Gunn's chapter on roof coverings is at once well written and thoroughly practical, the author's very complete knowledge of the subject enabling him to treat it with uncommon clearness and authority. Slating, tiling, shingling and thatching he describes in all their applications, and he gives particular attention to just those difficult details which less knowledgeable writers have been known to avoid. For thatching he has a soft side, although he fairly acknowledges some of its disadvantages. It is, he confesses, "liable to danger from fire, recognised by insurance companies in the imposition of a premium about three times that on a slated or tiled building; it forms a harbour for vermin and small birds; it is liable to strip in high wind; and it is a matter of difficulty to fix effective eaves guttering." Has he forgotten the late Sir Benjamin Ward Richardson's tremendous indictment of the thatch? If we remember rightly, the great hygienist traced the deaths of a whole family of children to the at first unsuspected infection from the thatch, in which, it is clear, microbes may much more abound than vermin or birds. In that case picturesque may be bought much too dear.

External plumbing is dealt with by Mr. Alan G. James, who fairly exhausts the architectural interest of the subject. The same thing may be said about the two chapters on timber, in which Mr. Herbert A. Satchell, F.R.I.B.A., very rightly discusses at considerable length the problem of dry-rot, without, however, arriving at any very helpful conclusion. It is to be noted with satisfaction that, contrary to the perfectly absurd but very prevalent assumption of the architect's plenary responsibility for the effects of this plague, it is recognised that dry-rot may appear in conditions over which the architect has no control whatever.

Two long chapters on joinery afford the editor of the work—Professor F. M. Simpson, F.R.I.B.A.—an opportunity for illustrating some historical as well as the ordinary examples of this fascinating craft. Flooring, panelling, doors and their casings, skirtings and rails, windows and their linings, shutters, skylights, lanterns and staircases, are all dealt with from the architectural standpoint, the craft being treated, of course, more from the designer's point of view than from the workmen's, although constructive details are by no means ignored.

The chapters on plastering and on painting and decoration are excellent instances of apt and sympathetic interpretation of the architectural conception upon which the book is based. Such a work was greatly needed. As we have already remarked, the fault of the ordinary manual is that it is but little better than a cram-book. Any attempt to escape this condemnation is necessarily fraught with the danger of flying to the opposite extreme of an intolerable deal of sack to a ha'porth of bread. This anti-climax has been, on the whole, very skilfully avoided, with the result that these volumes give the architect an excellent means of studying construction *con amore*.

"The Architects' Library: Building Construction." In two volumes. Vol. II. By John H. Markham, A.R.I.B.A.; Edwin Gunn, A.R.I.B.A.; Alan G. James; Herbert A. Satchell, F.R.I.B.A., P.A.S.I.; F. M. Simpson, F.R.I.B.A.; and J. D. Grace. With 142 illustrations. Pages x. + 360. 6½ ins. by 9½ ins., price 10s. 6d. net. Longmans, Green & Co., 39, Paternoster Row, London.

CHURCH RENOVATION IN KENT.

Considerable improvements have been effected in the fine Decorated and Perpendicular church at Egerton, Kent, under the direction of Mr. Philip A. Robson, A.R.I.B.A., of Westminster. They consist of a new heating chamber (builder, Mr. Pack, Egerton), with a low-pressure hot-water installation; the careful removal of the font to a suitable position under the tower, and various repairs. The same architect is also supervising the renovation of Rusthall Church, Tunbridge Wells, which was built in 1850 by Stevens, of Derby, and added to in 1861 by John Norton of London. The first contract (extensions and improvements to the choir and priests' vestries) has been completed, and the second is now in progress. Electric light (Osram lamps and holophane shades) has been installed, utilising the old pendants, which have been somewhat altered and dull-lacquered. The second contract includes the extension of the church westward. It is intended to lay rubber tiles in the nave aisle, this being the first use of this material in an Anglican church. Messrs. Strange and Sons, of Tunbridge Wells, are the builders.

TRADE AND CRAFT.

"Woodhouse" Steel Casing, "Tubolite" Illumination, and "Uneeda" Bolts and Casement Stays.

Messrs. The Linolite Co., 25, Victoria Street, Westminster, have forwarded for examination some samples of their "Woodhouse" steel casing and "Uneeda" bolts and casement stays. The casing comprises a trough and cover, the latter being "sprung on." The troughs are slipped or sprung into close-fitting joint pieces (clips), which are screwed or nailed to the wall. For ordinary work, angles (side, front, and back) and tees are supplied, but for awkward corners, and angles other than those of ninety degrees, a special bendable piece of casing is used, and this can be easily bent by hand to any curve. No drawing-in is necessary, the wires being simply laid in. This is one of the great advantages of the system, others claimed for it being easy accessibility for inspection of the wires, the fire-resisting character of the material (the casing being of steel), efficient electric bond formed by the method of jointing, that it is neater and less conspicuous than wood casing or tubing, can be put up and taken down easily and quickly, there is no stripping of the insulation, and the parts, being all made from dies, fit well.

The same firm send particulars of the "Tubolite" system of electrical illumination, in which rows of narrow lamps, tubular in form, are concealed in a narrow trough reflector of carefully designed curve. The system is obviously adaptable to a large variety of services, and is especially valuable for the illumination of shop windows.

The "Uneeda" patent self-locking bolt is applicable either to doors or windows, and cannot be opened from outside. From the inside, however, the mechanism is operated with the utmost ease, by simply lifting the milled head attached to a plunger, and on the plunger being withdrawn from one of the three holes drilled in the back plate for its reception the shoot may be pushed home, when the plunger again falls into one of the holes and becomes locked. There is a middle locking position, which, together with a tapered shoot, provides for a warped or twisted door being easily and securely bolted, without stiffness or noise in the operation. The bolt cannot be forced or shaken free, and is to that extent burglar-proof.

The "Uneeda" casement stay is hinged at both ends, one hinge being attached to the movable casement and the other to the fixed frame. Both hinges are pivoted, allowing the rod to move in sympathy with the casement, the mere opening of which extends the rod by telescopic action to the required width of the opening, the friction of the piston holding it at the required extension. The firm supply also a steel stay on the simplex hinge friction system, which is in appearance something like a joint-rule, and is of reliable and simple action.

Ventilation and Heating of Theatres and Picture Palaces.

With reference to an observation in the "Electrical Notes" in the Journal of July 9th, Messrs. Ewart and Son, Ltd., 346, 348, and 350, Euston Road, N.W., state that the London County Council have recently put forward very stringent requirements both as regards outlets and inlets—in fact, Messrs. Ewart declare, some of the most modern cinemas have more effi-

cient schemes than many well-known theatres. Messrs. Ewart have issued a special pamphlet on the subject, in which they describe and illustrate various methods of air extraction. They particularly recommend the system they have recently installed at the Alhambra Theatre, Leicester Square, where the air is first cleansed, then heated and passed through the building at positions so arranged that fresh, clean, warm air is poured in without draught and at a uniform temperature. Thus a comfortable heat is given throughout the building, and the vitiated air is continuously extracted at the roof level or dome without discomfort to the audience. Ewart's fans, cowls, atomisers, inlets, extract ventilators, and other appliances are illustrated in the booklet, which contains also some particulars of factory ventilation.

Bitumen Sheeting.

Messrs. George M. Callender and Co., Ltd., of 25, Victoria Street, London, S.W., have just secured an interesting contract, their bitumen sheeting having been chosen as the waterproofing medium in lining the new canal and dock for Messrs. Otto Monsted, Ltd., at their extensive works, Southall, Middlesex. Messrs. Callender have had extensive experience in this class of work, the forty years which have passed since they originated this form of waterproofing having witnessed many adaptations of their bitumen sheeting to all kinds of engineering work. It may be remembered that their material was applied in the case of the Tring Canal.

Keystona Flat Finish.

From the Keystone Varnish Co., Endon Works, Hunslet, Leeds, we have received samples of "Keystona" Flat Finish, which is described as a washable linseed oil paint without a gloss. It is free from lead or poisonous materials of any kind, and can be used with equal advantage on wood, iron, or any other surface. It is guaranteed never to "shell," however many renewals may follow from time to time. As ordinarily supplied, it is a pure white, but can be tinted at will, the priming coat mixed with a preparatory liquid supplied with the paint protecting all colours from the action of new lime and moisture; but no preparatory liquid need be used where walls have been previously covered with oil paints, nor where the surface to be treated is of dry Parian cement, or of iron, etc. It is stated that one gallon of "Keystona," with the addition of turps, covers more than 130 square yards, or, if used with preparatory liquid, 160 square yards. It can be applied over woodwork as a finish, as undercoating for enamel, groundwork for staining, glazing, and graining, and on metal ceilings, wallpaper, burlap, canvas, and galvanised iron—its uses as a finish being, in fact, unlimited. It provides not only a sanitary finish but one that, presenting a soft and restful surface that soothes rather than irritates, and is a treasure rather than an affliction to the eyes—a most important consideration in institutions, such as hospitals, as well as in the home. An artistic pamphlet describing the material contains a large number of admirably harmonious suggestions for the treatment of living-room, dining-room, and hall, with views of important buildings in which "Keystona" has been used—hotels, clubs, senate-chambers, theatres, hospitals, bedrooms, and living-rooms. Issued with it is a large broadside showing many hundreds of buildings in the United States, where this paint has been long favourably known.

British Portland Cement Manufacturers, Ltd.

At the second ordinary general meeting of this company, held at Winchester House, Old Broad Street, London, E.C., on July 22nd, the Right Hon. Lord St. Davids, chairman, presiding, the annual report which was presented contained the following items: "The year under review covers a period of re-organisation during which much has been done to consolidate the businesses acquired and to extend and improve various works, but the year has had to bear the loss of trade due to the transport strike, which resulted in a general dislocation of the company's business and the complete closing down for several weeks of its Thames and Medway works. The cost of production has been substantially increased mainly owing to the high prices of fuel and other materials, and there appears to be no prospect of its early reduction. The accounts now presented have been to a considerable extent affected by these conditions, but the trade activity which followed the general resumption of work resulted in improved prices for Portland cement being obtainable; in the circumstances the directors consider that the trading results for the past year may be regarded as satisfactory.

"The erection of new works in Ireland is being proceeded with, and plans for the construction of works at favourable points in the United Kingdom are in course of completion. A substantial interest has also been secured in a new company formed to erect cement works in South Africa, the plant for which is already ordered."

The balance-sheet shows revenue for the year of £306,092 12s. 10d., with a profit of £239,469 1s. 1d. The total preference dividend for the year was £69,631 18s. 9d.; dividend on ordinary shares at the rate of 7 per cent., £89,058 11s. 8d.; carried forward, £32,568 9s. 2d.

Claridge's Patent Asphalte.

Among works in hand or to be executed by Claridge's Patent Asphalte Co., Ltd., is the asphalte work at Messrs. Robinson's and Cleaver's premises, Regent Street; Hailey House, Wallingford; 35, Eaton Place, S.W.; British American Tobacco Co., Millbank; Grammar Schools, Bromsgrove; Lloyd's Bank, Hull; King Edward's Memorial Church, Hull; Great Marlborough Street Police Court.

Sanitary Fittings for Asylums.

The order for the sanitary fittings (baths, closets, lavatories, etc.) for Whalley Asylum has been placed with Messrs. W. R. Pickup and Co., Ltd., of Pearl Brook Works, Horwich, Lancs., who are also executing large orders for similar goods in connection with the Whittingham Asylum, Lancs., Upton Asylum, Cheshire, etc. The Whalley order is one of the largest of its kind ever placed in this country, the total cost of this asylum reaching nearly half a million. A selection of this firm's manufactures was included in the exhibition arranged for the inspection of the King and Queen on the occasion of their recent visit to Bolton.

The Linolite Co. had their annual outing on Saturday, July 5th, the office and works staffs leaving Victoria Station at 6.45 a.m. for Herne Bay. Mr. R. L. Matthews, the assistant manager, was present, but Mr. A. S. E. Ackermann, the engineer to the company, was unavoidably absent, having left a few days previously for Egypt, to test and report upon the Shuman-Boys Sun Power Plant that has been installed near Cairo.

MOTOR NOTES FOR BUILDERS AND CONTRACTORS.

BUYING COMMERCIAL VEHICLES: THE EXHIBITION AT OLYMPIA.

AS the result of rather extended critical observation of the conditions governing the purchase of commercial vehicles, it may be safely concluded that there are very few users who do not absolutely control the purchase of their equipment and (where a mixed installation has consequently resulted) who are able to secure any benefit or advantage from their records of operating cost, notwithstanding the considerable effort, time, and money which may have been expended in the keeping of such records. Hence the cost of operation is extremely indefinite in their minds, and the general feeling is created that, while the machine equipment may be extremely useful, the price paid for the service received is out of all rational proportion. This condition is really brought about more by mental confusion than by actual fact, and its cause may be regarded as the result of irresponsibility in the matter of purchase if not gross ignorance all round in the matter of application of vehicles to the work.

In numerous cases, where large installations are employed, but where the operation and care are more intimately controlled by the ones who assume complete responsibility for the investments they make, very satisfactory and reliable information is available, and is made use of in any new purchases, sometimes with an exactitude which is extremely gratifying to those interested in the propaganda of machine use. This latter type of purchaser is usually sought after by those responsible manufacturers who are careful about the reputation of their products, since its employment under such favourable conditions affords opportunity for mutual reciprocation, with advantage to both parties, which has a high monetary value. It is from this class of user that commendatory endorsement carries weight with the discerning purchaser, and the cost of operation as secured from such organisations is in strong contrast by reason of its difference below any figures which can be secured from the former type of installation described.

It is not intended to convey the impression that buying through a purchasing department is always encumbered with disadvantages, since there are many notable exceptions where a high state of efficiency prevails. Neither is it to be considered that in all cases where purchases are made without the aid of a purchasing department that the equipment is judiciously and competently selected. On the contrary, this is rather the exception than the rule, and we may consequently give consideration to some of the conditions which usually prevail where a purchasing department is not available.

In those cases where the prospective user has not previously owned motor truck equipment, and where the intended installation is of such size as to lend it importance, he is surrounded with difficulties not usually encountered in any other line of business. The popular inclination is to judge of motor truck equipment from the general experience gained with touring car use, and nothing could be more fallacious than judgment built up on this premise. The merchandise transportation motor truck has practically no basis of relation to a passenger transporting machine. Transporting merchandise by

motor truck has peculiarities of its own, and there is so much misinformation abroad on the subject that it is often perplexing for executives to come to a reasonable decision on the subject. The common practice is to endeavour to satisfy themselves by communication with those previously employing such apparatus, and in this direction they may or may not receive competent information.

Quite a number of purchasers get their first accumulation of information from the tactical employment of motor truck salesmen offering a variety of products, and this process is responsible for many of the tedious negotiations which are evident everywhere, and it is frequently amusing to see the kaleidoscopic changes which take place in the disposition of the intending purchaser from one attitude to another as he develops from one stage to another with the accumulation of his information. The final result is frequently commendable as based on conservative compromise, but in not a few cases the result is ludicrous under the influence of persuasive salesmanship.

Commercial Vehicles at Olympia.

The long-looked-for exhibition of commercial motor vehicles was opened at Olympia on July 18th by H.R.H. Prince Arthur of Connaught. The exhibition, which is under the patronage of His Majesty the King, has been organised by the Society of Motor Manufacturers and Traders, and remains open from 10 a.m. till 10 p.m. for eight days from July 18th to July 26.

There is probably no industry in the world making such rapid strides as that of the commercial motor car, and the vast number of business men who are keenly and vitally interested in the question of cheap road transport will certainly be attracted to Olympia. A few of the chief exhibits are noticed below.

The Daimler Co., Ltd.

The Daimler Co., Ltd., have entered the delivery-van field with a smart 10-cwt. vehicle, which is shown at Olympia, Stand 42. The chassis is a very interesting production, embodying many special features. The keynote of this Daimler is its simple construction and control. The engine is of the sleeve-valve type, and since the reliability of this motor is now unquestioned after its five years of running, we need only point out the additional features, viz., its fool-proofness in the design of any parts which may need adjustment. As far as ordinary running is concerned, there should be no need of any attention from the driver other than the weekly filling up of oil. A cone clutch—this being the most simple and most generally satisfactory type—conveys power by means of propeller shafts enclosed in a universal joint torque tube to the rear axle, in the forward extension of which is situated the gear-box.

Both brakes are situated on the rear wheels, and these are powerful enough to meet all the requirements of traffic running. A most important feature is the fitting of detachable wheels, so that chance of delay on the road is absolutely minimised. The control of the van has been simplified to the fullest possible extent. The speed control is entirely by a foot accelerator, and the gear change and brake lever have both been arranged in a

position which can be reached naturally by the driver without any exertion. The standard of van body is a neat production, with the following inside dimensions: 4 ft. 5 in. in height, 3 ft. 9 in. in width, and 5 ft. 1½ in. in length. Internal shelves are fitted when required. Not the least important feature of the Daimler express van is its light weight, which means, of course, that running costs are proportionately reduced. The chassis weighs about 12 cwt., and the complete vehicle approximately 16½ cwt. Completely equipped with spare wheels, 8½ by 10½ Dunlop tyres, and full set of tools, the Daimler van sells at a price which brings it well within the range of all retail houses whose present business demands the employment of two or more horsed vehicles. In addition to the above-mentioned car, the Daimler Co. show the following vehicles at Olympia: 3-ton lorry, with let-down sides and back; 3-ton lorry chassis, dismantled to show mechanical details; 4-ton char-a-banc; and 4-ton brewer's dray, built for Hodgsons' Kingston Brewery.

Napier Motors, Ltd.

At Stand 41 are the following exhibits of Napier Motors, Ltd.: (1) 15 h.p. taxicab to Scotland Yard regulations; (2) 15 cwt. 16-20 h.p. light delivery van; (3) 20 cwt. 16-20 h.p. tilt van; (4) 30 cwt. 20-24 h.p. box van; (5) 40 cwt. 30 h.p. tilt van; (6) 70 cwt. 40 h.p. open-sided lorry.

Messrs. Austin.

Austin commercial vehicles are designed and built at the factory responsible for the Austin pleasure vehicles. The company has given close attention to the questions of accessibility in all chassis, both for lubrication and adjustments, which are arranged on simple and efficient lines.

Various types of chassis are offered, and consist of the 10-h.p., with 9 ft. wheel-base for van; the 8 ft. 1 in. wheel-base chassis, with 15 h.p. engine and central steering for van; the 15 h.p. 9 ft. 7 in. wheel-base chassis, with central steering, for ambulance use, and the 2-3 ton lorry. Special attention is called to the latter, which should appeal specially to builders and contractors. Many novel features are embodied in its details, such as the twin-bevel drive, duplex semi-elliptic springs to each rear wheel, underslung tubular rear axle, girder frame, etc. With a ground clearance of 11 in. and a 5 ft. track, the lorry can be used in any country and on all kinds of roads. It has a low loading platform, and can be fitted with any type of body-work. A tipping gear and also a winding gear for hauling over difficult ground are fitted.

The company's special ambulance has been designed to facilitate the expeditious handling of patients and to transport them with a minimum amount of disturbance.

Dunlop Rubber Co., Ltd.

At Stand No. 172 (Gallery) the Dunlop Rubber Co., Ltd., have the following exhibits: Dunlop solid tyres for motor buses, Dunlop heavy service solid tyres. A special tyre for use on all types of commercial vehicles, intended to give the maximum resiliency while offering the greatest resistance to the destructive tendency of service upon indifferent roads. Made in all sizes enumerated in the company's trade list.

COMPETITIONS.

Devonport Municipal Buildings.

The award of the assessor (Mr. Ernest Newton, A.R.A.) in this competition is as follows: 1st (£350), Messrs. Ashley and Winton Newman; 2nd (£150), Messrs. E. Vincent Harris and Thomas A. Moodie; 3rd (£100), Messrs. Ralph Knott and Collins. Eighty-eight designs were submitted. There was a private view of them at the Guildhall, Devonport, on Monday last, followed by a public exhibition from 3 p.m. to 8 p.m. on the following seven days (Sunday excepted). We hope to publish the first premiated design in our next issue.

Training College, Sunderland.

An assessor is to be appointed by the R.I.B.A. to make the awards in a competition which is to be promoted by the Sunderland Town Council for a training college, which is to be built at a cost not exceeding £15,000.

Council School, Mossley.

The result of the competition for a new Council school at Foxplatt, Mossley, is as follows: 1st premium (£15 15s.), Eaton, Sons, and Cantrell, Ashton-under-Lyne; 2nd (£10 10s.), F. Quentery Farmer, Liverpool and Coventry. The assessor was Mr. J. H. Woodhouse, F.R.I.B.A., of Manchester.

Men's Hostel, Exeter University College.

In this competition, about fifty plans were submitted, and the assessor, Mr. Edwin Cooper, F.R.I.B.A., made the following awards: 1, Messrs. Edward Garratt and Simister, Birmingham; 2, Messrs. Charles Gascoyne and Geo. Nott, London; 3, Mr. Arthur William Kenyon, Westminster.

Church of St. James, Coulsdon.

In a limited competition, the designs submitted by Messrs. Greenaway and Newberry, A.A.R.I.B.A., for this church were approved by the building committee.

COMPETITIONS OPEN.

JULY 24.—SANATORIUM, FAZAKERLEY.—Designs for a sanatorium to be erected at Fazakerley, and to contain 250 beds. Premiums (150, 100, and 50 guineas) are now due and should be sent to Edward R. Pickmere, Town Clerk, Municipal Offices, Liverpool.

AUGUST 25.—BLOCK OF COTTAGE HOMES, TENDRING.—Tendring Union Guardians invite competitive designs, specifications, and estimates, for a pair of cottage homes for children. Particulars from Mr. A. J. H. Ward, Clerk to the Guardians, Tendring Union, Harwich.

SEPTEMBER 1.—TOWN PLANNING, HIGH WYCOMBE.—Schemes for the town planning of the borough are invited by the Borough Council. Premiums £25, £10, and £5. Particulars, T. J. Rushbrooke, Borough Surveyor, High Wycombe.

OCTOBER 31.—TOWN PLANNING SCHEME, YORK.—Premiums of £100, £50, and £25 are offered for a town-planning scheme for certain areas in and near York. Particulars, F. W. Spurr, City Engineer, Guildhall, York.

NOVEMBER 1.—ROYAL PALACE AND LAW COURTS, SOFIA.—Particulars, Commercial Intelligence Branch, Board of Trade, Basinghall Street, E.C.

NO DATE.—TOWN PLANNING, BRADFORD.—Bradford City Council invite designs for the laying-out of an estate of 50 acres and for the erection of workmen's

dwelling. Assessor, Mr. Henry T. Hare, F.R.I.B.A. Particulars (deposit one guinea), Frederick Stevens, Town Clerk, Town Hall, Bradford.

NEWS ITEMS.

£43,000 Hospital, Denmark Hill.

Acceptance of a tender amounting to £43,295 from Messrs. Holliday and Greenwood, Ltd., for the erection of the Maudsley Hospital at Denmark Hill, is announced by the Asylums Committee of the L.C.C.

Mead, McLean and Co., Ltd.

This new company has recently been registered with a capital of £10,000 in £1 shares, to carry on the business of manufacturers and of dealers in ventilating windows, window catches, etc. Registered office: 13, South Place, Finsbury.

Government Subway, Whitehall.

An application from the Office of Works for permission to construct a subway in Whitehall Place, connecting the War Office with the new offices of the Board of Agriculture, has been considered by the Works Committee of the Westminster City Council, and it is recommended that the necessary consent should be given.

Kelvin Memorial Window, Westminster Abbey.

A memorial window to Lord Kelvin in Westminster Abbey, which was dedicated on July 15th, is in the east bay of the nave, on the north side. Immediately beneath it are the graves of Kelvin, Newton, Darwin, and Herschel. The window has been designed by Mr. J. N. Comper.

The Crystal Palace Fund.

The Lord Mayor of London, in congratulating "The Times" on its success in raising £90,000 towards the purchase of the Crystal Palace for the public, states that he is taking immediate action to consider and to settle the future of the building in its new aspect as the property of the nation. A board of governors is to be elected by the principal donors—one representative for every £10,000 subscribed. Local residents are taking steps to supplement the fund, in order to supply the means of putting the buildings and grounds into thorough repair.

Restoration of Kames Castle.

Kames Castle, on the Isle of Bute, has been restored at a cost of £7,000 by the Marquess of Bute. It is said to be the oldest castle in Scotland. It has been inhabited for 600 years, but the only part of the original structure is the tall square tower, which is a landmark on the island. The marquess has adhered to the Scots' Baronial architecture. For centuries the castle has been the home of distinguished people, and it was there that John Sterling, whose life was written by Carlyle, was born.

Australian Commonwealth Building in the Strand.

To-morrow His Majesty the King will lay the foundation-stone of the new Australian offices on the Strand island site. The buildings are to show the Doric order, with recessed colonnading, and the materials are to be Portland stone and trachyte, a dark-grey stone resembling marble found in the Cambewarra Quarries in New South Wales. With its basement the building will be ten storeys high, and, besides the great exhibition hall and the offices of the High Commissioner and the Agents-General of the different States, there will be accommodation for receptions and room for a number of shops on the ground

floor. Beautiful Australian marbles are to line the exhibition hall, and here as elsewhere Australian woods will be used in the decorative scheme. The architects are Messrs. Marshall Mackenzie and G. R. Mackenzie, F.F.R.I.B.A.

UNIVERSITY OF LONDON SCHOOL OF ARCHITECTURE.

The new buildings for the School of Architecture at University College, London, are approaching completion, and will be ready for the opening of the new session in October. The buildings provide accommodation for one hundred students, and include three large studios (50 ft. sq., 35 ft. by 22 ft., 27 ft. by 29 ft.) for both ordinary and advanced students, a museum (50 ft. sq.), a cast gallery (48 ft. by 28 ft.), a library (35 ft. by 22 ft.), a lecture theatre (46 ft. by 28 ft.), with two screens for double lanterns, and a class-room (27 ft. by 19 ft.). There are also private rooms for professors and lecturers, a diagram room, dark rooms, cloak rooms, lavatories, and additional rooms for new developments, which can be utilised as required. It is intended to use some of these rooms at an early date for a Department of Town Planning.

The new buildings adjoin the Slade School of Fine Art, and new modelling studios are about to be erected, so that the three great arts of painting, sculpture, and architecture will be housed side by side.

The Senate of the University and the University College Committee will have the assistance of a special Architectural Education Committee in managing the school. This committee includes the following architects: Professor S. D. Adshhead, F.R.I.B.A.; Mr. Reginald Blomfield, President R.I.B.A.; Mr. Ernest Newton, Vice-President R.I.B.A.; Mr. John Slater, F.R.I.B.A.; Mr. Andrew T. Taylor, F.R.I.B.A.; and Mr. Edward Warren, F.R.I.B.A. The director of the school is Professor F. M. Simpson, F.R.I.B.A., who will be assisted by Professor R. Elsey Smith, F.R.I.B.A., Dr. J. J. Burnet, F.R.I.B.A. (special visitor for academic design), Mr. Leslie Wilkinson, A.R.I.B.A., and Mr. Arthur Stratton, F.R.I.B.A.

The work of the school will be aided by the teaching to be derived in other departments of University College; for example, in design of structures and strength of materials, teaching will be provided by Professor Cormack and Mr. E. Sprague; in hygiene and sanitation, by Professor Kenwood and Mr. Sherwood New; and in painting and sculpture by Professor Frederick Brown and Mr. Havard Thomas. The programme of the school provides for full courses in architectural training, leading either to the Bachelor of Arts Degree Course (Honours in Architecture) of the University, or to the Certificate in Architecture. There is also an Academic Design Course, which will be conducted on the lines of the course in the Ecole des Beaux Arts, Paris. This is intended for those who have already taken a course of architectural training.

There will also be evening classes for those engaged in architects' offices during the day. The Carpenters' Company lectures will be continued as before, also the Carpenters' Company Design Class, to which Mr. Leonard Stokes and Mr. Edward Warren will be the special visitors, and an Academic Design Class by Dr. Burnet will be added.

PROJECTED NEW WORKS.

City Lunatic Asylum, Newcastle-on-Tyne.

The Home Secretary has approved of the plans prepared by Mr. John W. Dyson, architect, of Newcastle, for additional buildings, comprising villa blocks for eighty patients, isolation hospital for six patients, and nurses' home for fifty-six.

Town Planning, Birmingham.

Birmingham City Council are shortly to be asked to sanction their fourth town-planning scheme. Pioneers in municipal town-planning, the Council have now three important schemes under way—Harborne and Quinton, East Birmingham, and North Yardley; and at the next meeting of the Council the Town Planning Committee will ask for permission to apply to the Local Government Board for authority to prepare a town plan for South Birmingham. This will be easily the largest of the committee's undertakings, comprising an area of 8,000 acres—nearly a fifth of the whole city—and including South Yardley, King's Heath, and part of King's Norton. The plan will join up with that of North Yardley and extend to Pershore Road, thus leaving no great area between it and the Harborne and Quinton scheme. If the required permission be obtained, Birmingham will have 14,000 acres developed on town-planning lines.

L.C.C. RECOMMENDATIONS.

The Building Acts Committee of the London County Council have submitted to the council the following among other recommendations with respect to applications under the London Building Acts, 1894 to 1909. The recommendations are accompanied by conditions which, being usually formal, are not reproduced here.

City of London.—Erection of an oriel window in front of the "Cock Tavern," No. 22, Fleet Street, City, on the application of Messrs. Gilbert and Constanduros, on behalf of Mr. G. L. King. Consent, subject to the consent of the City Corporation.

Fulham.—Erection of bay windows and porches to houses on the northern and southern sides of Nella Road, Fulham, and to irregular open spaces at the rear of the houses marked 1, 3, and 5 on the plans submitted with the application of Messrs. Allen and Norris. Consent.

Hackney, Central.—Erection of a two-storey building at the rear of No. 107, Mortimer Road, Hackney, next to Englefield Road and De Beauvoir Road, to the lines shown on the plan submitted with the application of Mr. M. W. Matts, on behalf of Mr. A. J. Weibking. Consent.

Lewisham.—Erection of bay windows, porches, and oriel windows to Nos. 26, 28, 30, 32, 34, and 36, Rushford Road, Crofton Park, as shown on the plan submitted with the application of Mr. J. Nicholls. Consent.

Paddington, South.—Erection of an iron and glass shelter at the entrance to Westbourne Park Station, Green Lane Bridge, Great Western Road, Paddington, as shown on the plans submitted in connection with the application of Mr. W. Willox, on behalf of the Metropolitan Railway Company. Consent.

Peckham.—Erection of a one-storey shop upon a portion of the forecourt in front of No. 14, Evelina Road, Peckham, to the line shown on the plan submitted with the application of Mr. T. G. L. Miller. Consent.

City of London.—Erection of a building on the north-western side of Church Row, Houndsditch, at less than the prescribed

distance from the centre of the roadway of the street, as shown on the plan submitted with the application of Messrs. Bateman and Bateman, on behalf of Messrs. Hurst and Sons. Consent.

Westminster.—Erection of a building upon a site abutting upon Regency Street, Douglas Street, Douglas Place, and Ram Payne Street, Westminster, as shown on the plan submitted with the application of Mr. F. Warman, on behalf of the Ragged School Union. Consent.

Clapham.—Erection of a two-storey building at the rear of No. 38, Honeywell Road, Battersea, as shown on the plan submitted with the application of Messrs. Tuffs and Co., on behalf of Mr. G. Neal. Consent.

R.I.B.A. PROBLEMS IN DESIGN.

The following is a list of the candidates for the Final Examination whose designs, submitted under subjects VIII. and IX. of the revised Testimonies of Study, have been approved by the Board of Architectural Education of the Royal Institute of British Architects:

SUBJECT VIII.

Design for a Carriage Entrance.

P. D. Bennett.

SUBJECT IX.

Design for a Bank.

H. L. Charles.	E. Fincham.
W. T. S. Foster.	W. R. Davidson.
J. E. Marchington.	H. T. Cooksey.
H. E. Crossland.	C. H. Woodhouse.
E. R. Frankland-Bell.	C. Ripley.
I. Omar.	J. O. Thompson.
J. O. Cheadle.	T. T. Jenkins.
E. A. L. Martyn.	B. Newbould.
H. F. Chandler.	E. R. F. Cole.
R. Lone.	A. Thorpe.
S. G. Soper.	O. Newbold.
G. P. Stainsby.	C. H. James.
H. Bagenal.	A. Silcock.
W. G. Knight.	V. Dyson.
J. W. Bull.	L. Foster.
G. Bennett.	R. A. Barber.
A. Nisbet.	A. J. Sparrow.
J. J. Nathaniel.	H. Andrew.
C. H. Wright.	J. K. Currie.

SUBJECT X.

Design for a Monument containing one or more Fountains.

R. Brainé.	R. S. Wallace.
W. W. Locke.	J. S. Hodges.
A. S. Burnett.	J. E. Lutyens.
F. Williamson.	B. A. Miller.
A. F. Kaltenbach.	E. C. Davies.
G. E. Charleswood.	R. H. Philp.
H. J. Tebbutt.	A. F. Hooper.
H. Dicksee.	J. Macgregor.
F. A. Addey.	J. C. Fowell.
F. Jenkins.	F. O. Lawrence.
R. S. Dixon.	G. Davidson.

LEGAL.

Indemnity for Accident to Workman.

At the Leeds Assizes, on July 15th, Messrs. George Houlton and Son, builders and contractors, of Hull, sought to secure an indemnity from Messrs. Edward Boyd and Sons, of the Hope Iron Works, in respect of any claim for damages brought against them by one of their (plaintiffs') workmen. The case was a sequel to an accident which occurred at Messrs. G. and T. Earle's cement works in Hull in January, 1912.—It appeared that the plaintiffs and defendants were jointly engaged in the construction of apparatus at Messrs. Earle's works, when one of Messrs. Houlton's men was injured owing to the alleged negligence of the defendant's workmen in not properly securing a steel super-heater weighing two tons, which was being lifted by means of a chain. It was stated that the mass of metal fell upon the

man, inflicting injuries which kept him away from work. The defence was a denial of negligence, and the defendants asserted that the accident was, in fact, caused by the man interfering with the super-heater when their workmen were moving it.

A verdict was given for the plaintiffs.

BUILDING TRADE LABOUR UNREST.

Grimsby.

In common with the paper mill labourers the builders' labourers in Grimsby are also agitating for increased pay. They have instructed Mr. G. MacDonald, secretary of the Gasworkers' and General Labourers' Union, to demand: One penny per hour increase all round; overtime, time and a quarter between 5 and 7 p.m.; between 7 p.m. and midnight time and a half; on Saturday time and a half from noon to 4 p.m. and after 4 p.m. double rate. The employers have met the men's representatives in conference and a proposal was laid before the men for the forming of a conciliation board.

Workmen's Effectual Protest.

A satisfactory settlement has been reached in regard to certain matters that recently formed the subject of a grievance amongst workmen employed upon the erection of the municipal buildings in Coventry. A few weeks ago the men asked that proper messroom and sanitary accommodation should be provided, and an undertaking given that certain working rules applicable to the district should be made operative on this work. The matter was agreed to stand over for a fortnight to enable the necessary improvements, etc., to be carried out. These now appear to have been effected quite satisfactorily, as the workers' secretary has sent a letter of thanks to the Council.

Monmouthshire.

The whole of the masons and bricklayers from Abersychan to Panteg, in the eastern valleys of Monmouthshire, ceased work on July 5th, demanding an increase of a half-penny per hour in their wage rate. The men are at present getting 8½d. per hour, and are on strike for 9d. On the same date the carpenters in the same district gave a month's notice in support of their demand for an increase of from 8d. to 8½d. per hour.

OBITUARY.

Mr. William Chasen Ralph, F.R.I.B.A.

Mr. W. Chasen Ralph, F.R.I.B.A., died at his residence in Wigan on July 10th with painful suddenness.

Mr. F. J. Barnes.

The death has occurred at Weymouth of Mr. F. J. Barnes, who, besides being chairman of the Southern Sea Fisheries Committee, was a marine biologist of some distinction, and was the principal private quarry-owner at Portland, and from his quarries most of the stone for the refacing of Buckingham Palace is being produced and worked.

New Chapel, Grey Ladies' College, Coventry.

The Bishop of Worcester has dedicated the new chapel at the College of Grey Ladies, St. Nicholas Street, Coventry. The chapel was designed by Mr. Arthur Dixon.

THE ARCHITECTS' & BUILDERS' JOURNAL.

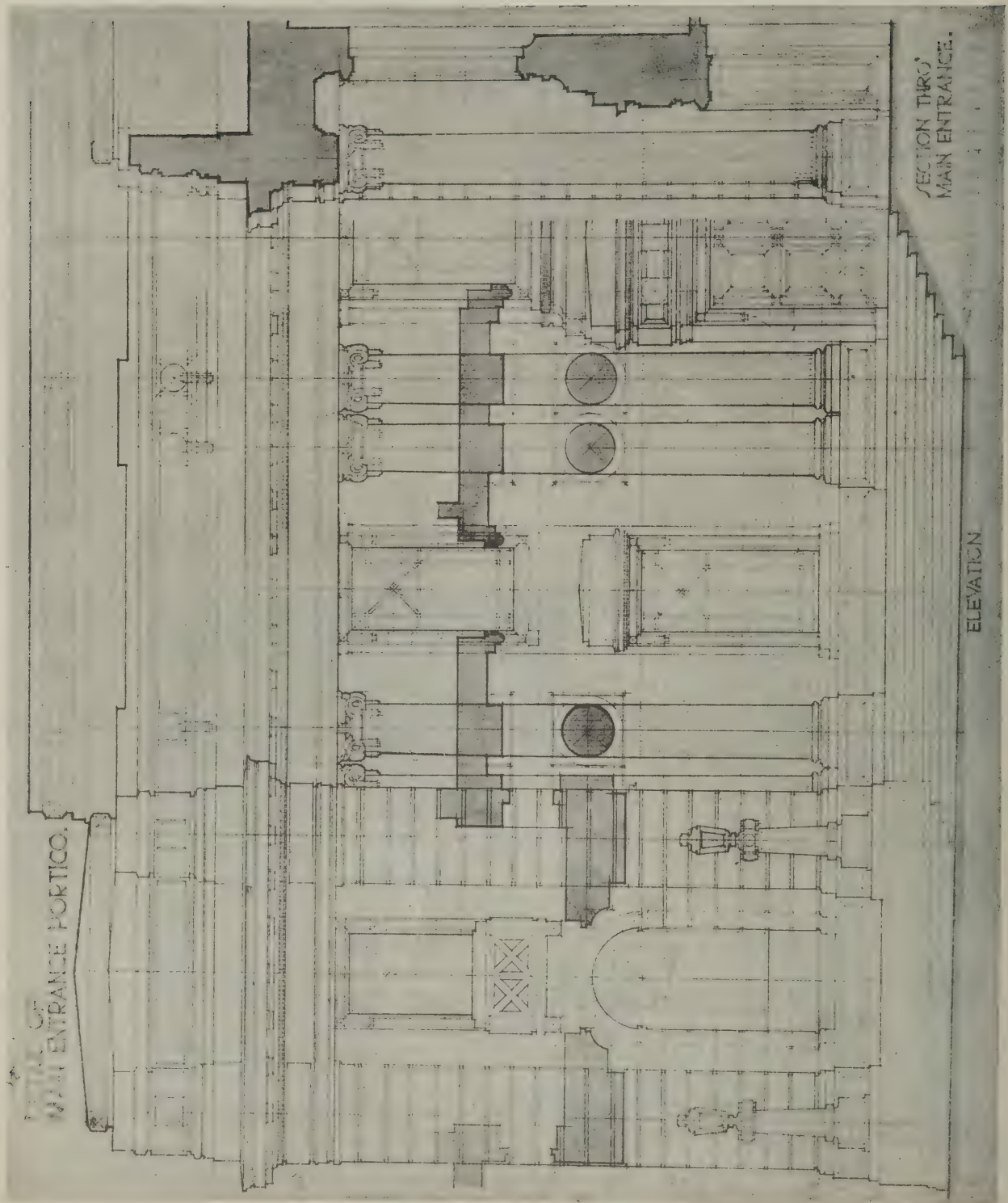
Wednesday, July 30, 1913.

Volume XXXVIII. No. 968.

No. 44.



(From Piranesi.)



DEVONPORT MUNICIPAL BUILDINGS COMPETITION: DETAIL OF DESIGN PLACED FIRST.

H. V. ASHLEY AND WINTON NEWMAN, F.F.R.I.B.A., ARCHITECTS.

(See page 105)

THE ARCHITECTS' & BUILDERS' JOURNAL.

JULY 30, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 38. No. 968.

Some Reflections on the Devonport Competition.

TO design a building successfully to contain a guildhall, municipal offices, police and sessions courts, police and fire stations, etc., according to a pre-arranged schedule is a feat quite peculiar to our age—a feat the more remarkable when the minimum the schedule demands is pretty nearly the maximum the cubic contents allow, and economy admits of little excavation to a very sloping site.

Designs produced under such conditions must, therefore, be judged by a standard of their own, and what they unavoidably lose from the academic and monumental aspect must be made up for by brilliance in planning that is essentially technical, comprising convenience of access and disposition of parts, good lighting and ventilation, and such things.

That the designs submitted in the competition for new municipal buildings to be erected at Devonport must be judged from this point of view is apparent at once both from the conditions and what they have brought forth.

Ideal (in the Platonic sense of the word) or Subjective architecture has few exponents in this country—it is, in fact, nearly a lost art, in spite of the magnificent tradition left us by such men as Elmes, Barry, and Cockerell—and rarely displays itself in competition work. There is, however, a strong desire to make our architecture more monumental and academic, and it is a matter of regret that the schemes of the exponents almost invariably exceed the cost or fall short from the purely objective point of view. Their enthusiasm has considerably influenced the standard of competition work generally, and, so far as awards go, symmetry and axiality of plan have been strongly encouraged—in fact, as far as possible, proved essential to a premiation.

There are many attributes beyond, though, that go to the making of a fine architectural conception—the *coup d'œil*, the successful connections of corridors and staircases, fine vistas, and dramatic pauses for these at present we must accord the Frenchman the palm.

Skill has not been lacking in handling the Devonport competition, but the work of competitors has suffered from two causes:—The first in regard to plan, through having no personal acquaintance with the site; the second in regard to elevation, through being equally unacquainted with the tradition of the neighbourhood and its public buildings.

Ignorance of the latter has had little weight with the assessor (the objective of the building being of the first importance), but ignorance of the former has caused much good labour to be directed into a wrong channel, for on visiting the site one is convinced that a concentrated rectangular block is the only desirable one. This is the more important since, owing to both the slope of the site and nature of the surroundings, a large central block (so well exemplified in the first premiated design and common to so many others) would be conspicuous from very many points of view.

What irony for the paper-competition-architect who indicates towering and majestic masses that he knows

will never be seen and leaves out such unpleasant excrescences as boiler house, stacks and other features denied the embellishment of block, swag, and quadriga!

We congratulate Mr. Ernest Newton, the assessor, on his selection of Messrs. Ashley and Newman's scheme for the first premium. We consider it comes an easy first both as regards conception and plan. As can be seen in the accompanying illustrations, the building is divided into halves by a large central block, containing the Guildhall and Assembly Hall, with excellently arranged corridors and exits. To the north of this is placed the Police and Sessions Courts, Police and Fire Stations, and to the south the Council Chamber, Mayor's suite, and Municipal Offices.

Though such a scheme has been adopted by most competitors, the authors far excel in their planning of the integral parts. The Council Chamber and deputation and retiring rooms are treated with excellent approaches, and are placed in good proximity to the Mayor's suite and Town Clerk's department. A very neat piece of planning, too, is the desirable connection between the Council Chamber and Guildhall for purposes of State functions. Good, also, is the contiguity of the Medical Officer of Health's department with that of the Education Officer, and the similar relations of the borough surveyor with the water engineer.

We would suggest that the vestibule approach to the Guildhall does not admit of great possibilities on plan and is perhaps hardly adequate in size for its purpose; we would remark that the coupled columns do not proportion themselves well. It is a matter of regret, too, that the main staircase is placed in the front of the building, since this method does not admit of a fine effect on entering; but its position there is inevitable under the circumstances. Owing to the clever way in which the parts have been disposed upon the site, the lines of the elevation are most pleasing, and we are sure that Messrs. Ashley and Newman, in the working out of their design, are fully capable of imparting to it the feeling of the local tradition—a tradition fully deserving their closest study.

Messrs. Harris and Moodie, coming a good second, have adopted again the right conception of a rectangular block, with a central block predominating, their fire station being placed as a detached block on the north side of the site—a feature which we cannot associate with monumental design.

The block containing council chamber and committee rooms is placed over the rates department. Although this is convenient and minimises the number of areas, it entails bad lighting to the corridors on the ground floor, while the axial placing of the Council Chamber, always an imposing feature, is sacrificed.

The plan, however, is altogether eminently simple and masterly, the police courts and cells being particularly well lighted.

Though the elevations suggest the quiet dignity associated with the authors' work, they lack what Robert Adam termed movement. We feel, however,

that the authors are to be complimented upon rising above the commonplace and superficial; their elevations would be quite in keeping with the spirit of the town, which is so desirable in a building of this importance.

Several other interesting schemes were submitted in the competition, some criticism of which will be found in the article on page 105 of this issue.

Builders and the Revenue Bill.

IN commenting on the effects of the Lumsden case, immediately after the delivery of Mr. Justice Horridge's judgment, we said—what, indeed, was only too palpable—that the decision was a staggering blow to the building industry, and we foretold prompt and vigorous action on the part of the national organisation of master-builders. To such effect did they protest, that the Revenue Bill was brought into being, and its text, which has just been printed, is summarised in another part of the present issue. Hasty criticism would be premature and tactless, but so important a document shall in due course receive in these columns the attention it deserves. For the moment it is sufficient to say—what, indeed, is sufficiently obvious—that the Bill holds promise of relief from some at least of the many intolerable burdens that have been of recent years imposed upon the building industry by legislative enactments whose incidence could hardly have been more severe if they had been expressly devised “in restraint of trade.” Whatever the merits or demerits of the Bill, the National Federation must certainly be congratulated on the zeal and ability with which they must have stated the case for the building trades' employers in order to secure such redress as the Bill may be assumed to represent. But it is not imaginable that they will rest content with this achievement. It is their plain duty—not to press home an advantage, but to analyse the Bill with all the critical acumen they can bring to bear upon it, with the sincere object of assisting the Government towards a just and equitable solution of the complex problem with which they have to deal. The organised builders need not be cautioned that the effect of hypercriticism would be to place the Bill in extreme jeopardy; for in ensuing negotiations, the moderation and tact that have already borne fruit are not likely to desert them. It is certainly a great advance to have got the Bill into form, and we now hope for its ready passage through the House.

Some Parochial Predilections.

IT should be useful to record occasional concrete instances of the reputed “parochial view” of architectural matters. The Reigate Board of Guardians having before them a proposal to invite eight local and four outside architects to submit competitive designs for a new infirmary, a lady member “asked if the Board had considered the effect of putting money outside the union. Those people outside would uphold other unions, and if the money went to architects in this union it would most likely help their own rates. She deprecated going outside the union for those four architects.” There is the case. The chairman at once saw that he had to become very apologetic. He pointed out that the proposal involved nothing beyond the possible alienation of the 300 guineas which the successful architect would receive as a lump-sum premium: the contract for the building would in all probability go to some builder within the union! Another guardian, pursuing the same policy of placation, thought “it might be to the ratepayers' interest to accept a design from outside.” There, again is the case. Certainly he did not say “pecuniary interest”; but it is pretty evident what was in the air; for then a question arose as to the policy of giving a lump-sum

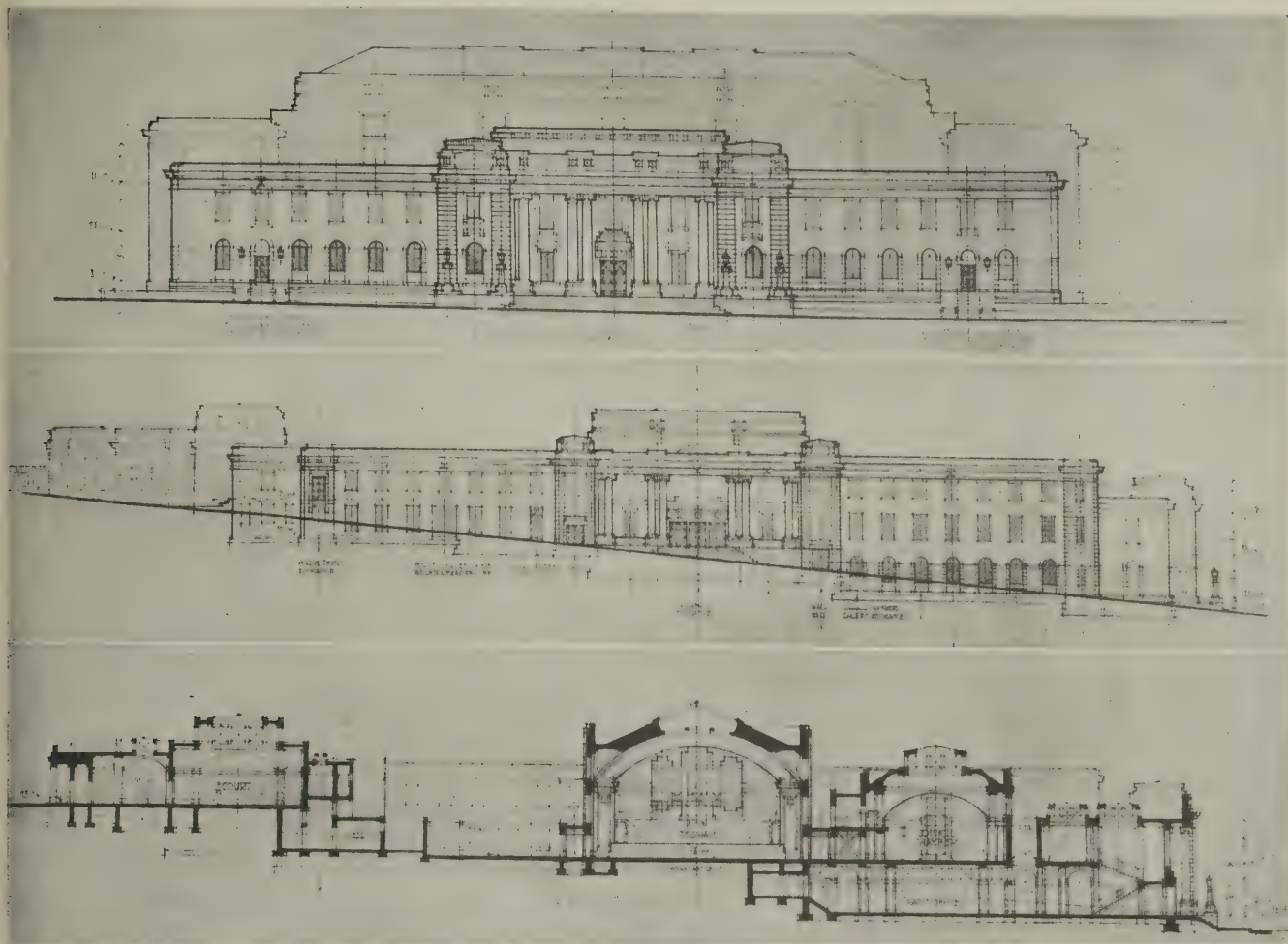
premium instead of a percentage commission, and in support of that policy the chairman was reduced to the extremity of confessing that there “was not the slightest possibility of the building costing less than £6,000.” More profound depths were plumbed, however, by the guardian who added that he was in favour of a lump-sum instead of a percentage commission because, “if the latter were given, there would probably be a large number of extras.” The report was immediately adopted! Boards of Guardians are nothing if not practical—and parochial; and when they revel in mean views the outlook for noble building is distinctly gloomy, if not absolutely hopeless. We have on many former occasions had to point out the small, limited view which public bodies often take of an architectural competition—quite failing to see the professional aspect of the matter—and this latest instance at Reigate serves to show that a great deal of reform has yet to be effected.

The National Federation Half-Yearly Meeting.

TO-DAY the half-yearly general meeting of the National Federation of Building Trades Employers is being held in the Balmoral Room of the Trocadero Restaurant, Piccadilly Circus, London. Usually the summer meeting of the Federation is held in some provincial centre, but London, although, as the headquarters of the Federation, it is always the scene of the winter meeting, is not thereby debarred from nomination as the summer rendezvous. There are many excellent reasons why it should not be excluded. It is only to its inhabitants that London in the summertime seems such an excellent place to get away from. To others, its sights and scenes, and the inexhaustible variety of its interests, are an unfailing source of delight; and as the Federation is very strong in provincial membership, those delegates who regard the summer meeting as affording an opportunity for combining pleasure with business have but little inclination to suppose that London is disqualified on either count.

An interesting agenda has been prepared; the chief items in it being recommendations from the Council (which held its meeting at the same place on the afternoon of the preceding day) on the following matters: Finance Act valuations; proposals with regard to the agreed draft form of sub-contract, and the agreed form of contracts the situation created by the recent strike of plasterers in London; the action of operatives who are parties to the Conciliation Scheme in striking before submitting the disputes to the Conciliation Boards; varying subjects coming under the heading of the control of trade conditions; and a few items that, on the surface, appear to be of minor importance. Nearly always, at the provincial meeting, the delegates are accorded a civic welcome, the Lord Mayor or the Mayor, as the case may be, opening the proceedings, which are commonly held in the town hall. London has no lack of town halls—there is one of a sort to every metropolitan borough—and no lack of Mayors; but, with regard to central London, the Guildhall and the Mansion House are too fully occupied to come into the category; and the London County Hall is not quite ready for the suitable entertainment of guests. Then, again, there is some sort of delicacy with respect to there being as it were two Kings of Brentford. This time the honour of opening the proceedings has fallen, not upon the Lord Mayor, but upon the Chairman of the London County Council, Mr. Cyril S. Cobb. In the afternoon, the President of the London Master Builders' Association was to receive the members and their ladies at the Earl's Court Exhibition. Next week we shall give an account of the business proceedings, which, with regard to at least one item on the agenda, will probably reveal features of extraordinary importance to the industry.

DEVONPORT MUNICIPAL BUILDINGS COMPETITION.



Design Placed First. H. V. Ashley and Winton Newman, F.F.R.I.B.A., Architects.

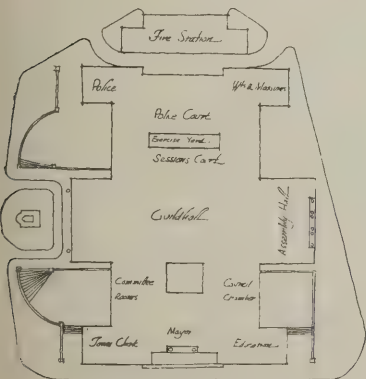
The competition for new municipal buildings at Devonport has created a great stir among architects, and the designs which we are able to publish in this issue will be studied with much interest.

The designs placed first and second are dealt with in the leading article in this issue: and to the comment there made may now be added some particulars and criticism of other designs submitted in the competition.

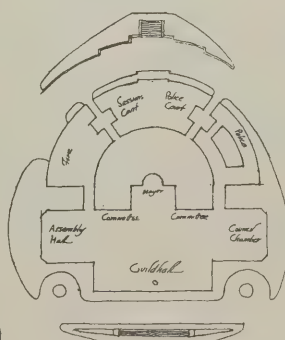
Messrs. Knott and Collins, a sketch of whose site plan appears below, receive the third premium for a very compact and well-thought-out scheme, with the building excellently placed on the site. The plans are open to objections, however, particularly the lighting to the corridors and the cramped entrance to the vesti-

bule, while here, again, we think the low isolated block on the north side, containing the fire station, is a great mistake, and has apparently made the authors quite despondent of producing an elevation on that side which would suggest the monumental qualities of the remaining elevations. We would also commend the authors on aspiring to the traditions of the district by their elevations; but we were disappointed in their half-inch detail, which proved itself far below the academic standard of such buildings in the neighbourhood as the Raglan Barracks and H.M. Victualling Yard, designed by John Rennie.

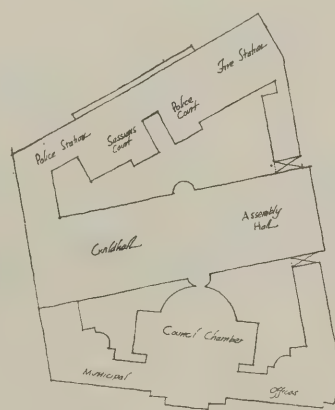
Of the unsuccessful designs sent in, one that perhaps attracts considerable attention is No. 81, by Messrs.



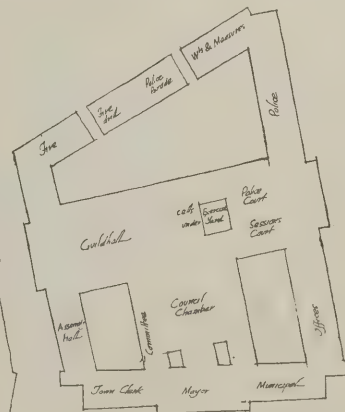
By Ralph Knott and Collins.



By Jemmett and Tubbs.



By Richardson and Gill.



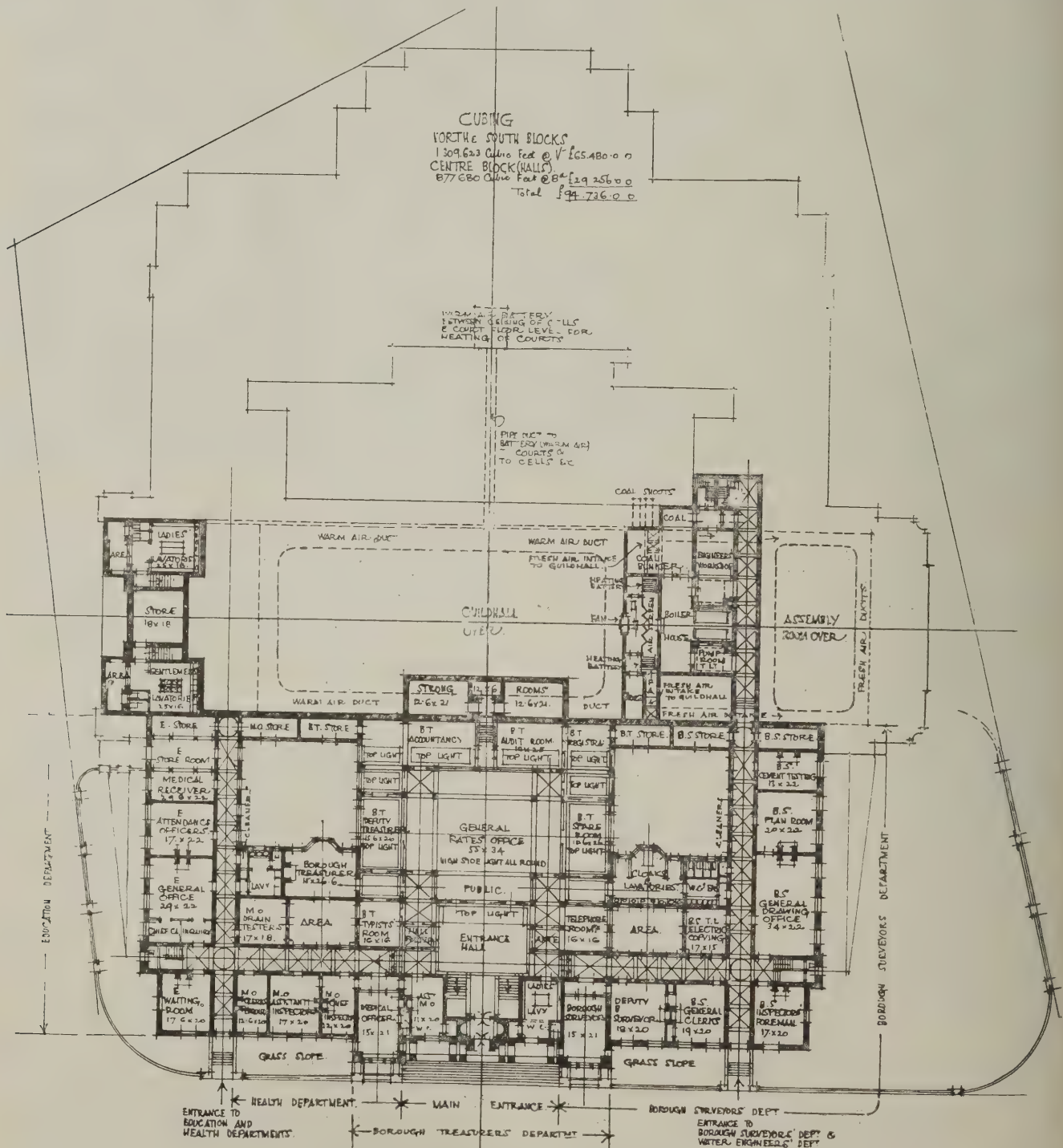
By James Swan.

Jemmett and Tubbs, a sketch of whose block plan we reproduce. Although this is a clever conception, we do not think the merits rise much above those of paper design. Taking into consideration the sloping site, the curve would give rise to weak lines, and such a conception has not assisted in solving the technical problems of the planning. The provision of a mezzanine floor, while providing a dignified entrance hall and good rates office, has caused the authors to compress the accommodation on the first floor, necessitating the Guildhall (placed on the first floor along the southern front) sharing corridor approaches and staircase with the Council Chamber and Mayor's suite; the Council Chamber, too, is far too isolated.

The elevations, somewhat after the manner of Sir William Chambers, are distinctly pleasing, though scarcely local in feeling.

We were sorry to see that Messrs. Richardson and Gill's efforts were directed into a wrong channel. Their plan (see preceding page) follows the line of site, thus no doubt falling beyond the pale of the assessor's consideration. The admirable way in which the various departments and connections were planned and the dignified interiors and elevations helped to form a very complete and thorough solution of a problem fraught with difficulties, the more numerous owing to the variety of angles on their plan. We think, too, that the enthusiasm for architectural treatment has led them into showing excesses of decoration incompatible with the small sum at their disposal. Their scheme, nevertheless, is of great interest.

Another example where the author has gone astray in following the boundary lines of the site is shown in the plan of Mr. Swan. It is commendably straight-



DEVONPORT MUNICIPAL BUILDINGS COMPETITION: PLAN OF DESIGN PLACED FIRST,
Showing Ground Floor of Municipal Offices.

H. V. ASHLEY AND WINTON NEWMAN, FF.R.I.B.A., ARCHITECTS.

forward in conception and may possibly be of interest to competitors on the same lines.

Mr. William Haywood's scheme shows a plan with possibilities, and the drawings are extremely delightful in every way. The elevations are distinctly above the usual standard, though perhaps one feels the combination of Italian and Greek motifs at times not quite happy. The flat ceiling of his Guildhall is a pleasant relief from the others one has seen so often, and the interior generally is a good piece of design. This set is altogether quite one of the best unpremeditated designs. The half-inch scale drawing is particularly masterly.

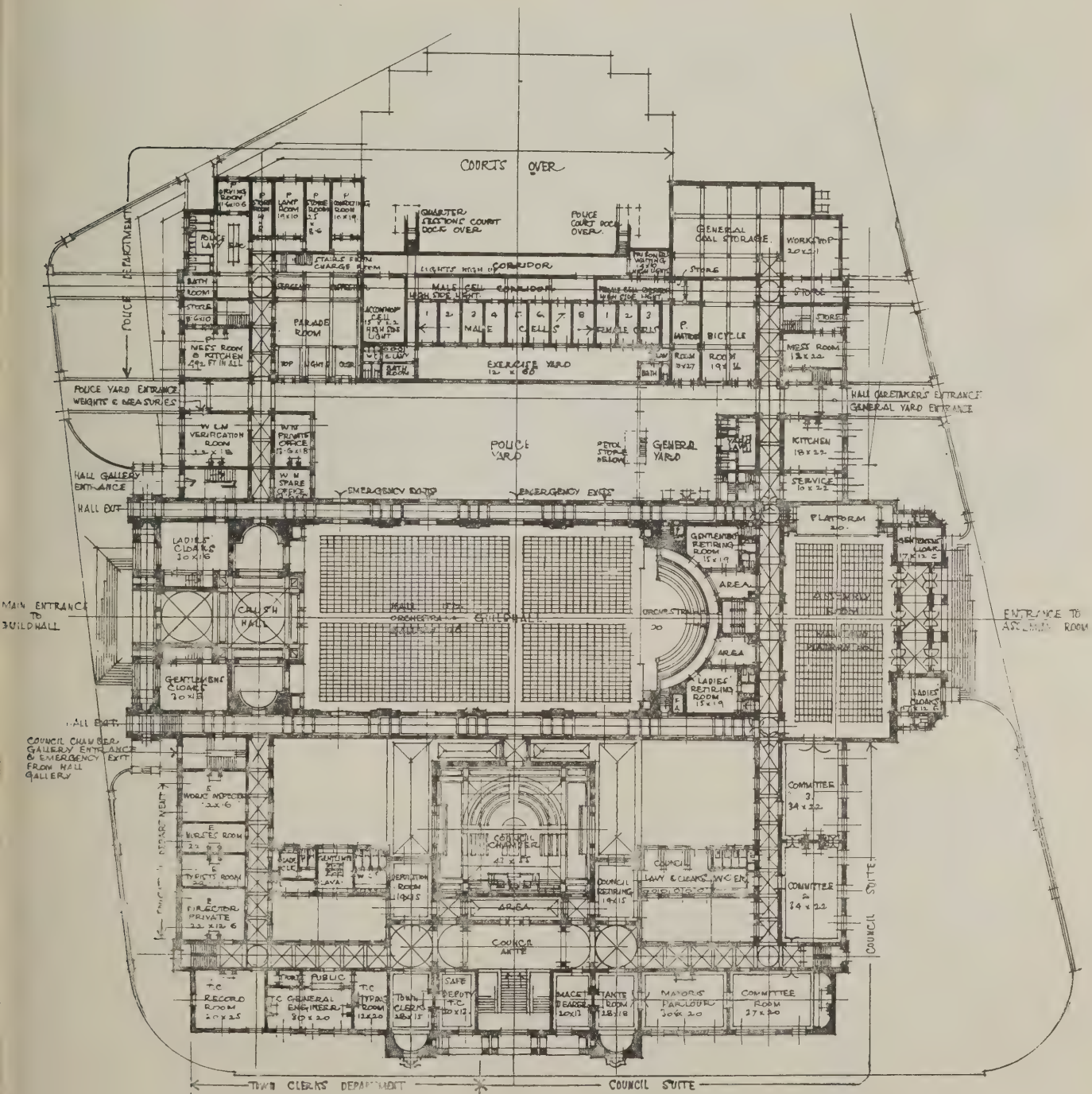
Mr. H. A. Hall sends in a scheme on the lines of the winning design, but falls far below it in the working out.

Of Messrs. Gascoyne and Nott's drawings, by far the most interesting is the half-inch detail, which shows great skill in handling, and is a charming draw-

ing. Placing the Guildhall on the Paradise Road front has given one fine elevation at the expense of the others. The plan is too disconnected.

Messrs. Webb and Farey send in a scheme that is certainly monumental in character and full of pleasing vistas, but at the sacrifice of necessities of municipal planning, the Assembly Hall, Police Court, Sessions Court, and Council Chamber each occupying a corner pavilion. Although offering great possibilities for architectural effect, placing them thus is neither desirable for quiet nor convenience of access. The drawings are well executed.

One leaves such an exhibition with feelings of mingled wonder and despair. Out of some eighty-five sets sent in for this competition but a small percentage give evidence of any architectural education of value behind them. Far too conspicuous, too, are the apostles of the vulgar, with their cheap fashionable



DEVONPORT MUNICIPAL BUILDINGS COMPETITION: PLAN OF DESIGN PLACED FIRST,

Showing First Floor of Municipal Offices, Ground Floor of Guildhall and Assembly Room, and Lower Ground Floor of Police Department

H. V. ASHLEY AND WINTON NEWMAN, F.F.R.I.B.A., ARCHITECTS.

ornament, which they are pleased to classify as "Neo-Grec"! (Where is Professor Cockerell?) However, those few authors who aspire to the higher ideals in themselves provide an interesting and inspiring exhibition.

CORRESPONDENCE.

The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.

Correspondents are asked to be brief, and to write on one side only of the paper

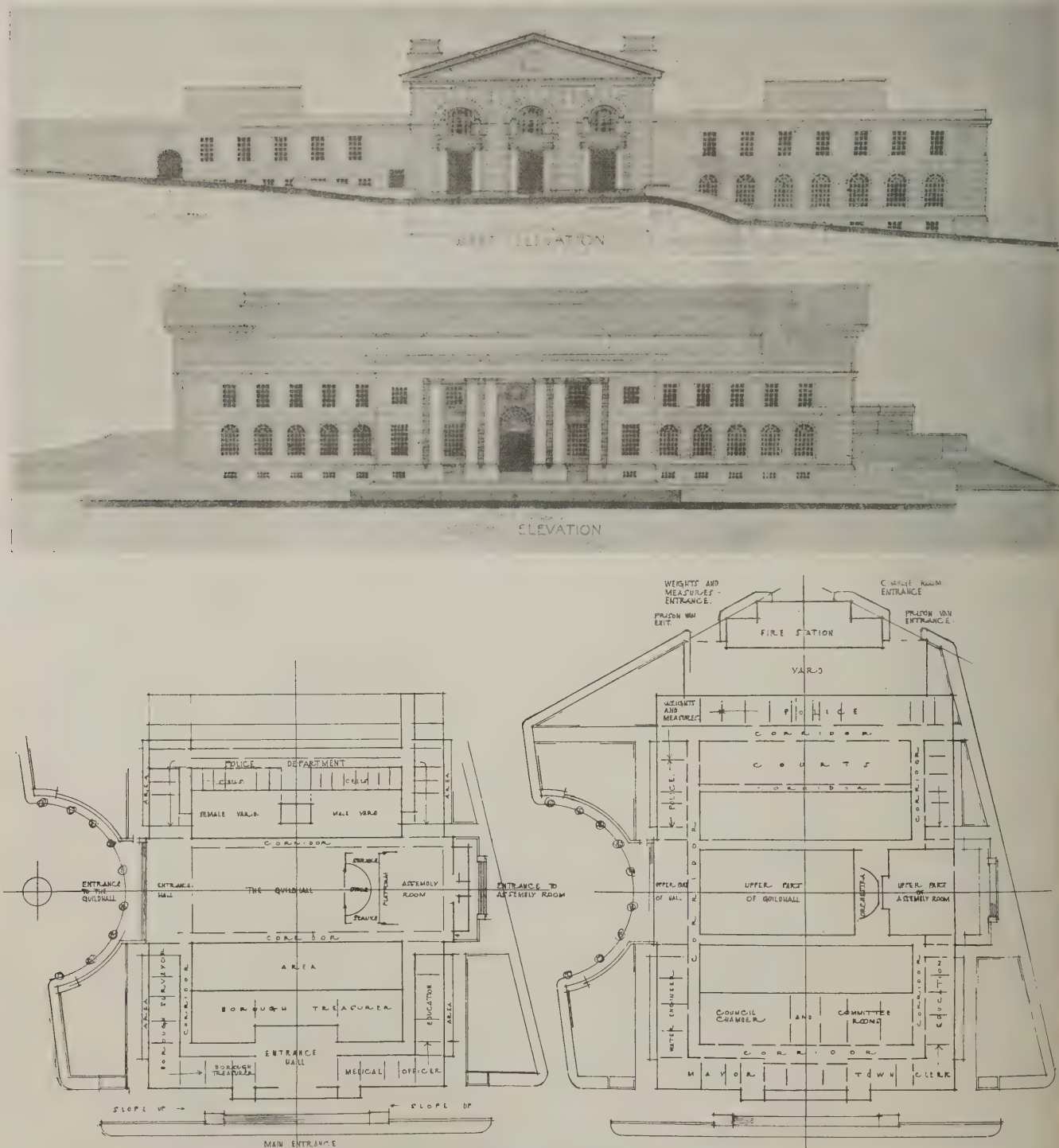
Preserving St. Paul's: A Practical Suggestion.
To the Editors of THE ARCHITECTS' AND BUILDERS JOURNAL.

SIRS,—I am much interested in the articles which have recently appeared in your journal in connection with the dangerous condition of St. Paul's Cathedral,

and, in thinking what might be done to save this most valuable building the idea has suggested itself to me of driving eight circles of specially made interlocking sheet piling round each of the piers supporting the dome. The piling would be watertight, and would be driven very gradually with an electrically operated ram, producing a series of light rapid blows so as not to endanger the building through shock. The piling thus driven to the desired depth would form a sort of watertight caisson which would prevent the piers sinking further; and the latter could then one by one be underpinned, and as far as possible reconstructed. I am many miles away from St. Paul's and have no means of judging of the feasibility of my suggestion, but should be glad to hear whether or no it is at all possible to carry out under existing conditions.

SPHINX.

Cairo, July 15th.



DEVONPORT MUNICIPAL BUILDINGS COMPETITION.

Design Placed Second. E. Vincent Harris and Thomas A. Moodie, A.A.R.I.B.A., Architects.



NEW BUILDING FOR THE COMMONWEALTH OF
A. MARSHALL MACKENZIE, LL.D., A.R.S.A., F.R.I.B.A.



TRIALIA, LONDON. ELEVATION TO STRAND.

D A. G. R. MACKENZIE, F.R.I.B.A., ARCHITECTS.

OUR PLATES.

Interior of New York Stock Exchange.

THE big scale which distinguishes the interior of the New York Stock Exchange, illustrated on page 111, is characteristic of modern American work. A large floor area was here required, and the architect has provided it in a very adequate manner. Attention is drawn to the great span, which has been rendered possible by heavy girders and stanchions concealed by the interior finish.

Dundee Central Improvement Scheme.

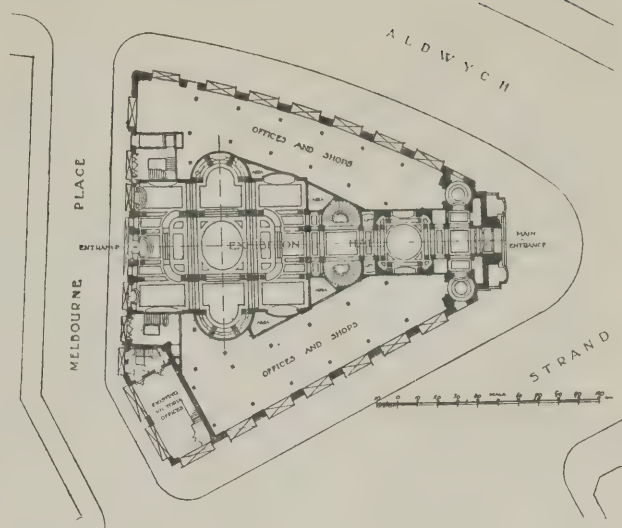
The scheme of central improvements for Dundee which has been drawn up by Mr. Jas. Thomson, the City Engineer, if carried out, would transform the centre of the city, which is now a congeries of mean streets, into some semblance of nobility, and, by widening and straightening the thoroughfares, would add enormously to business convenience. An important feature of the scheme is shown in the illustration on page 113, which represents a view looking west from the civic centre. In improving the river front, 85 acres of land would be reclaimed, and the site for a civic centre provided. This reclamation would involve the construction of a sea-wall, the erection of a new bridge on the foundations of the old Tay Bridge, and the construction of a footbridge connecting the reclaimed land with Seabraes. It is a bold scheme, but Mr. Thomson shows it to be quite practicable, even from the financial point of view. The appearance of the proposed buildings comprising the civic centre and adjoining grounds forms a striking contrast to the scene which at present meets the eye from the direction of the esplanade or railway stations.

Bank at Stalham.

The premises adjoining the branch bank at Stalham for Messrs. Barclay and Co., Ltd., illustrated on page 115, were destroyed by fire, and the new banking room was erected upon the spare ground adjoining the bank house, from designs by Mr. J. Owen Bond, Licentiate R.I.B.A., of Norwich. The doorway is in reconstructed Portland stone, by Messrs. Crotch and Son. Messrs. T. Gill and Son, of Norwich, were the builders.

New Building for Commonwealth of Australia.

The foundation-stone of the new London offices of the Commonwealth of Australia, shown on the Centre Plate in this issue, was laid by His Majesty the King

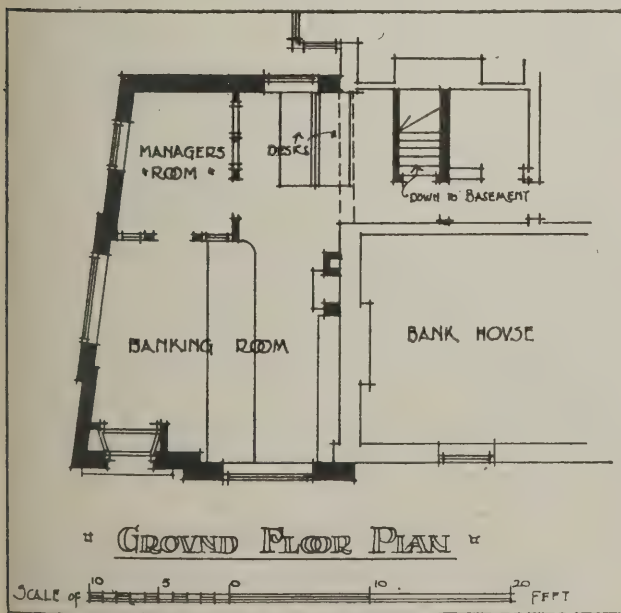


NEW BUILDING FOR COMMONWEALTH OF AUSTRALIA,
LONDON.

on Thursday last. The site is at the east end of the Strand "island," and was purchased from the London County Council for £379,756. The building will accommodate the offices of the High Commissioner for the Commonwealth, together with an exhibition hall for the display of Australian products; also offices of the Agents-General of the States who wish to be housed in the building. The remaining offices and shops will be let to private tenants. The exterior of the building will be of Portland stone upon a base of trachyte, a greenish-grey stone resembling granite, which is being worked and imported from Australia. Internally the main feature of the building will be the exhibition hall, which will occupy the whole of the ground floor except that part used as shops. Australian marble will be employed in this hall and Australian woods for the finishings. The first floor will be devoted to the offices of the High Commissioner, including the publicity department, and the meat and fruit department, and a library and reading-room will be provided for the use of Australian visitors to London. The reading-room and library will be panelled in Australian black bear wood, with pillars of dark caleula marble, also an Australian product. Mr. Murdoch, Assistant-Director of Works in Australia, visited London last Christmas and discussed with the architects (Messrs. A. Marshall Mackenzie and A. G. R. Mackenzie) the possibility of using various Australian materials, and seasoned woods, representing the best of the Australian timber, are now being collected by the Office of Works in Australia. The trachyte stone, which is being used for the base of the building and for the steps, will be partly polished and partly dressed, this method of treatment having been found to be the best for bringing out the special qualities of that stone. The external sculpture and internal mural decorations are to be carried out by Australian sculptors and artists, including Mr. Bertram Mackennal, A.R.A. A detail drawing of the ground-floor storey, Strand front, is reproduced on pages 116 and 117.

SUBURBAN HOUSE COMPETITION.

THE awards in our recent competition for elevations of a pair of suburban houses based on the plans placed first in the earlier competition will be announced in our next issue, when we shall publish the designs placed first, second, and third, together (possibly) with others which are worthy of being illustrated.



BANK AT STALHAM.

HERE AND THERE.

IN every branch of work there are a certain number of questions that want clearing up. Some, unfortunately, are of so illusive a character as to offer little hope of ever being definitely settled. This is so in matters concerning architectural design, involving questions of taste and æsthetics which cannot be determined once and for all by any process of mathematical or experimental science. But, in addition to those nebulous problems, there are some others of a purely practical kind which have stood in need of solution these many years and should now be grappled and finished with. The problem of ventilation is one such. In a place like the House of Commons, for instance, does it not seem a sad deficiency that a system of ventilation cannot be determined which will set at rest all the complaints of members who sit limp on the morocco seats of the House and have no other desire than to sleep, perchance to dream? Yet this matter has received the attention, time and time again, of the First Commissioner in office, backed by expert advice and the knowledge of his engineering department. The requirements can be formulated very simply. They consist in supplying so many cubic feet of fresh air per minute and the removal of a corresponding quantity of vitiated air, at such a velocity that nobody feels a draught. Despite all that has been done, Sir Frederick Banbury still clamours piteously for the old-fashioned system of open windows, and would willingly consign the whole of the present arrangement to the nether regions. But anyone who has had experience of large rooms filled with a mixed audience will know that this is not the golden solution. Only a few days ago I was in the coffee-room of a certain London club which has great architectural beauty. Here was a big room lighted on two sides with large windows looking on to open airy spaces. In the four corners of the ceiling were grids for the exit of hot air, and on the long side of the room were two doorways. Yet there is just as much complaint made by members here as the First Commissioner has to listen to on one of his most exhausting days: some members requiring the windows open, others demanding they shall be shut, after the approved manner of railway travellers: the general result being that they are kept practically closed, and the room gets stuffy.

* * * *

The ventilation problem is an old one, and round about it rage controversies as fierce as any Battle of the Styles. When last Mr. Henman appeared at the Institute and set out his scientific arguments to prove that the plenum system was the only effective one, citing such places as the Birmingham General Hospital and the Belfast Royal Hospital, with their skylighted and close-shut wards, he encountered a roomful of opposition from architects. They said that Mr. Henman, though he may have filtered and washed and warmed and cooled his air, and sent it coursing through clean tiled-lined ducts, took some quality out of it which resulted in the air becoming enervating. But, trusting my memory in this matter, I think the impression I got at the time was that even if Mr. Henman had taken something out of the air, his scientific application of ventilation enabled him to see far more clearly where he was in the matter than the happy-go-lucky way of just opening windows and leaving the rest to chance. But the question should not be allowed to remain in this undecided state. It is of national importance, and the R.I.B.A., in conjunction with any other body or bodies who might be able to render service, should prosecute a serious inquiry. A Royal Commission, even, would find ample scope for labours

that would be far more profitable in their application than those of many Royal Commissions have been. It ought to be determined exactly how a large public hall can be ventilated effectively. For my own part I do not believe at all in the policy of the open window and the roof ventilator. It seems to be far too hit-and-miss in essence. The alternative is, of course, some form of plenum ventilation, wherein, so far as I can see, lies the true solution of the problem.

* * * *

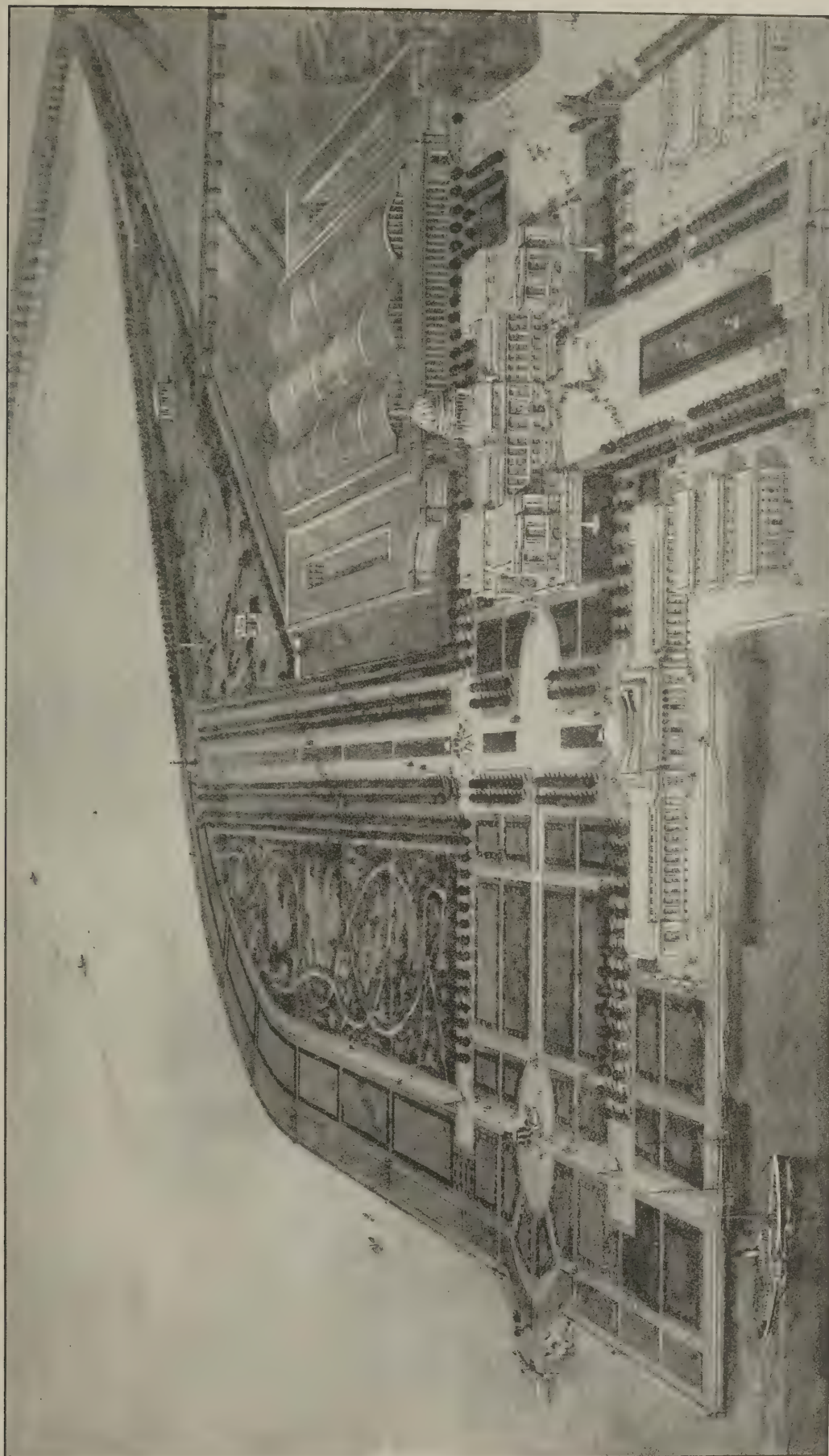
Another matter standing in need of attention is that of acoustics. Very rarely indeed does one even hear any reference to it, and what information is in print is not at all generally familiar among architects. In such places as concert rooms, churches, and public halls, where large audiences assemble for the purpose of hearing rather than seeing, the question of acoustics is all important. Yet no one seems to know anything about it, except Professor Sabine, and he roams serenely in a realm of formulæ and summations which the mere architect cannot hope to understand. Consequently, there is no saying beforehand what sort of a place for sound any concert hall is going to be. But the sense of hearing is no other than the result of vibration acting on a sensitive surface. Even in early school days we are made familiar with those pretty sand figures which sound waves can produce on a piece of paper, and a casual glance through a book on physics will show us all sorts of diagrams that indicate how completely the fundamental questions have been settled long ago, while, in practical application, that most wonderful of all human inventions, the telephone and that more recent and ubiquitous instrument the gramophone, are most convincing examples of the fact that sound is a substantial determinable thing. So far as the architect is concerned, however, he knows very little about it, excepting a few vague notions that such and such materials are absorptive of sound waves, while others are reflective. As a result, we often find ourselves in places specially built for hearing where we cannot hear properly, despite all the tinkering with overhead wires and sounding-boards and curtains. Only a short time ago I was in a new council chamber where the most outrageous reverberation existed, due partly to the shape of the apartment and partly to the material of which it was constructed. As a piece of architectural design it was unquestionably very striking, and admirably carried out, but a council chamber is a place where a number of pushful people want to tell one another what they think about matters civic, and occasionally matters personal, and they do not wish their own first sentence to come back rudely upon their second. Here, then, is another matter for inquiry. It surely could be settled once and for all what are the best proportions for a room where music is to be performed or public speaking to take place; what are the best materials to use, whether the ceiling should be broken up by beams, whether there should be recesses, and so on. It is by no means to be supposed that a rectangular form is the best. The Third Church of Christ Scientist, in Mayfair, for example, recently built from the designs of Messrs. Lanchester and Rickards, is a most admirable place for sound, yet it has a barrel ceiling and a big curved recess at one end. An expert committee could go into all these matters and could pay visits to examples of executed buildings which were notable for their good or their bad acoustics: and if the findings of such a committee could be set down in a form that architects could make practical use of, then our old friend the "long felt want" would once again have been met.

UBIQUE.

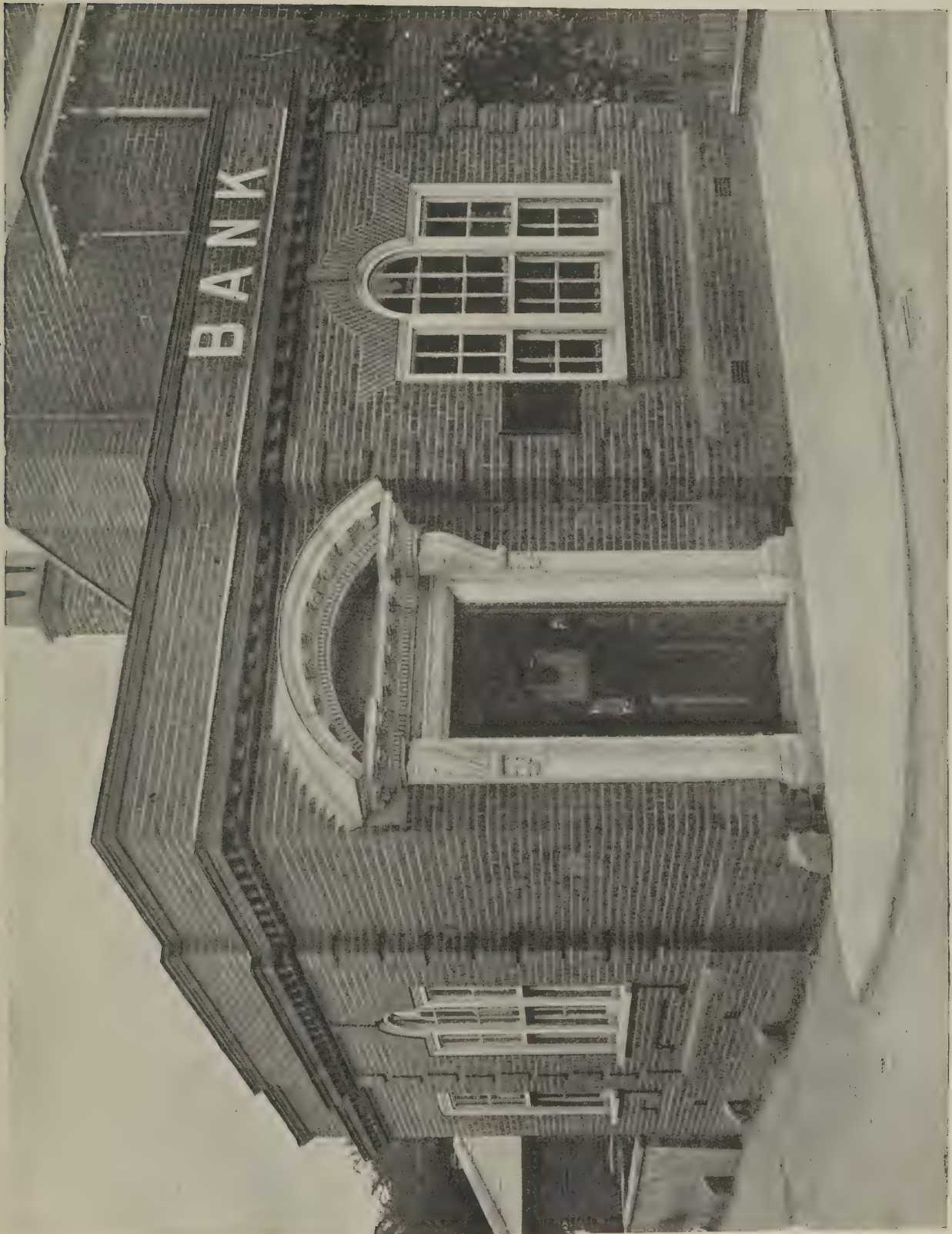


INTERIOR OF THE NEW YORK STOCK EXCHANGE. GEORGE B. POST, ARCHITECT.

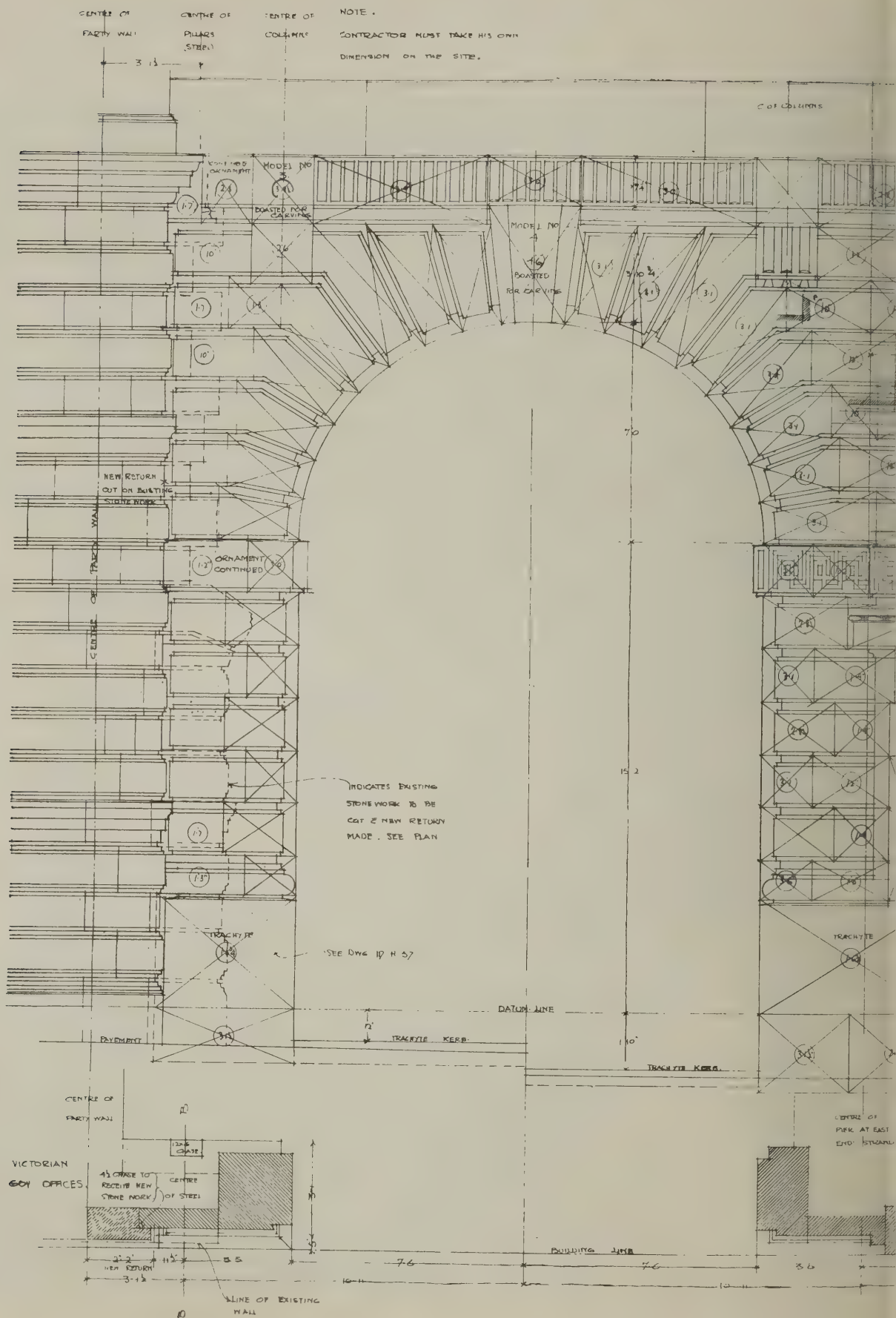
(See page 109.)



CENTRAL IMPROVEMENT SCHEME FOR DUNDEE: VIEW LOOKING WEST FROM CIVIC CENTRE. JAS. THOMSON, CITY ENGINEER.
(See page 109.)

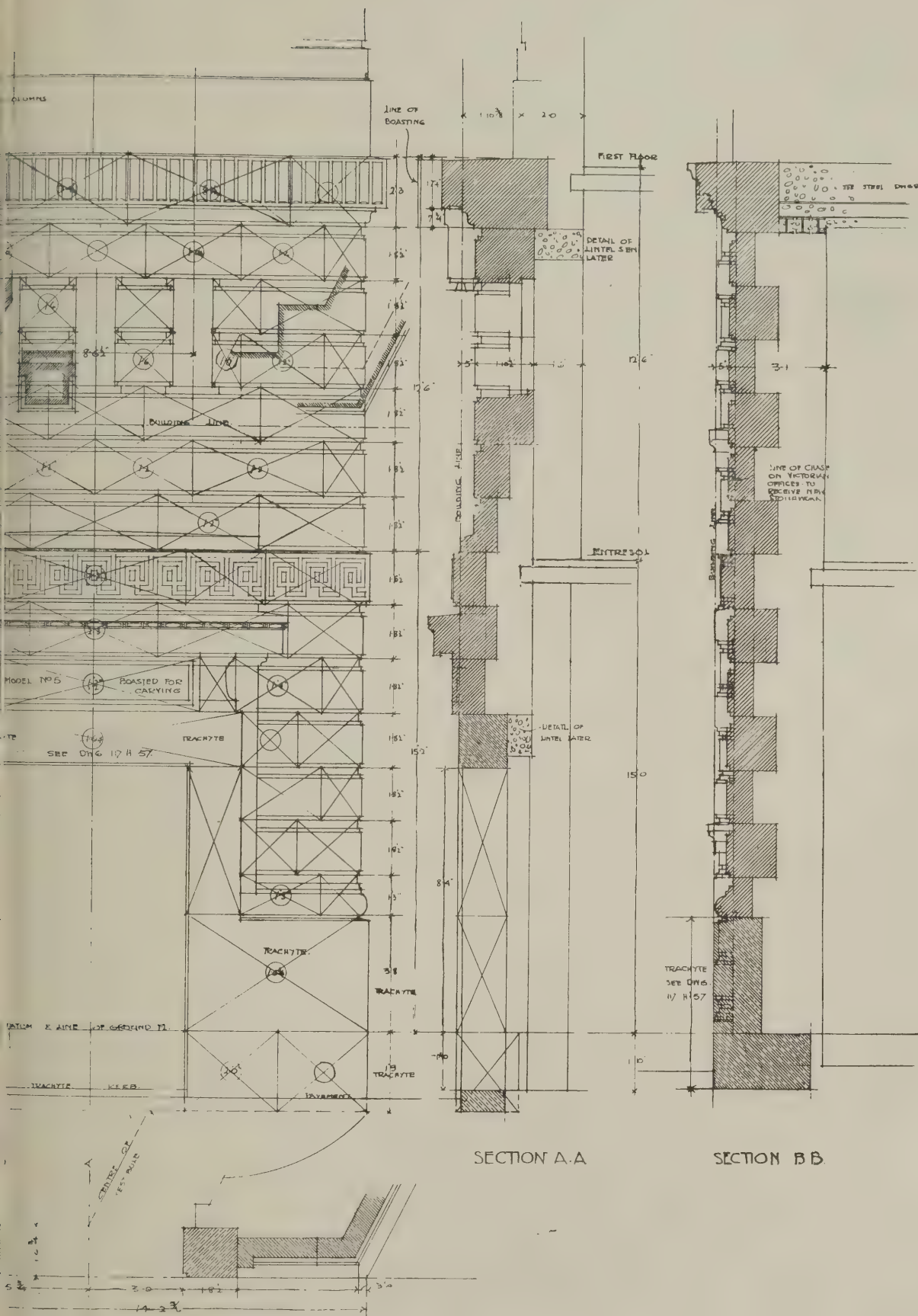


BANK AT STALHAM, NORFOLK. J. OWEN BOND, LICENTIATE R.I.B.A., ARCHITECT.
(See page 100)



WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS. XXXIII.—NEW BUILDING FOR COM

A. MARSHALL MACKENZIE, LL.D., A.R.S.A., F.R.I.



WEALTH OF AUSTRALIA, LONDON: DETAIL OF GROUND-FLOOR STOREY, STRAND ELEVATION.
AND A. G. R. MACKENZIE, F.R.I.B.A., ARCHITECTS.

BOOK NOTICES.

Sir Thomas Jackson's "Byzantine and Romanesque Architecture."

Although Sir Thomas Jackson's two volumes contain together some 600 pages of interesting text and many beautiful plates, the vast extent of the subject, embracing one thousand years of architectural history, has necessitated a comparatively slight treatment of each individual building. A great number of buildings of each style are illustrated by means of charming perspective sketches, with short descriptions, and in the multitude of special cases the general principles of the two forms of architectural art are made to exhibit themselves.

A chronological table at the end of the second volume assists the illustrations to produce a sense of historical progress, and should give the reader a fairly comprehensive view of the main features of the styles.

Taken separately, the descriptions tend to be somewhat over-brief, and may tantalise a careful reader by stimulating his curiosity only to disappoint it by the abrupt introduction of the next building under examination.

As no bibliography of other works on kindred subjects has been incorporated, the useful curiosity may evaporate without leading a general reader to the deeper study of detail that is necessary to complete understanding of the buildings mentioned, for few can hope to be equally fortunate with the author and visit most of the places he describes.

The illustrations, too, are artistic impressions rather than technical statements of fact, and although sufficiently detailed to give a reasonably accurate general effect, there is no attempt to exhibit any of the buildings as a complete whole scientifically and accurately portrayed. Small sketch plans are given in some cases, but as they are often reprints from works which modern study has superseded, they are not altogether trustworthy and only give a rough idea of the relation of the principal parts. The section of the important church of St. Irene, Constantinople, although corrected by the observations of the author, introduces an extraneous string-course in the western domical vault, and an arch too many in the south aisle below it. It omits, too, the interesting seats, similar to those at Torcello, which encircle the interior of the apse.

Involving, as it does, a question of taste, it is, of course, impossible to expect everyone to agree with the preference expressed for the rather elaborate group of the late Byzantine church of the Apostles at Salonica, or with the disparaging remarks applied to the simpler exteriors of the older building, of which charming perspective sketches are given in contradiction of the text.

Naturally, it has been impossible to reproduce the magic of constructional fitness and appropriate colour that affects a spectator upon the spot, but in the text passages of a surprising coldness seem to indicate that the author was not greatly enthusiastic upon some important features of Byzantine work, although his severest statements will probably seem reasonable enough to persons whose knowledge of the style has been gathered only from books and drawings.

Even the illustrations, beautiful as they are, cannot altogether do justice to a style that depends so largely upon its suitability in its own climate and upon effects of glorious colour which defy reproduction in print.

Some fascinating chapters treat of the ebb of Roman art in Italy and of the partly accidental differences in style and construction which introduced Romanesque work in North Italy with all the momentous possibilities of Gothic art hidden in the arched ribs of its early groin rib vaulting.

The second volume contains a series of chapters upon Romanesque architecture in Germany, France, and England, illustrated as before with many excellent perspective sketches and photographs and a few small plans. The text is for the most part confined to descriptive accounts of the buildings, and where comment is made it is generally in a more favourable vein than in the earlier part of the work; a preference for Romanesque vigour rather than Byzantine repose seems to underlie many passages—the Norman Conquest, for instance, is welcomed as having made a clean sweep of Saxon architecture, which "seems to have sunk into a sort of Byzantine immobility."

To many readers this seeming indifference to a noble and constructional style will appear somewhat of a blemish in a book on Byzantine and Romanesque architecture, for however immobile Byzantine work may have become in the North-West, its influence in the South and East was by no means negligible, and at this day, in eastern countries, sound constructional traditions of Byzantine art are making a brave fight for existence against the imported horrors of civilisation and its unsuitable and hideous architecture. Possibly the British character has something incurably energetic about it, for intelligent architects are to be found who, having studied Saracenic architecture, confess that they find the Taj Mahal "effeminate" and that they personally prefer Gothic.

Beautifully bound, printed, and illustrated, "Byzantine and Romanesque Architecture" will find a welcome in many a library.

"Byzantine and Romanesque Architecture." By Sir Thomas Graham Jackson, R.A. In two volumes, £2 2s. net. Cambridge University Press.

British Standard Specification for Copper Tubes.

A sub-committee of the Engineering Standards Committee was appointed, in July, 1912, to consider the standardising of metal tubes and connections, and their recommendations have now been published, price 2s. 6d. net (28, Victoria Street, Westminster). The requirements of domestic and similar work have been primarily kept in view, and the sub-committee have availed themselves of the information previously obtained by the Joint Committee on Screwed Copper Pipe Standards, appointed by the Institution of Heating and Ventilating Engineers and the National Association of Master Heating and Domestic Engineers. Three classes of tube are dealt with in the specification—namely, low-pressure, medium pressure, and high-pressure, and three several tables give, for each nominal bore of tube, the inside and outside diameter, thickness of tube, gauge diameter, number of threads per inch, depth of thread, core diameter, length of thread, and standard and maximum weights in lb. per lineal foot. Explanatory notes, with diagrams, follow the tables; and the report should have the effect of securing a much-needed reform.

"British Standard Specification for Copper Tubes and their Screw Threads (primarily for Domestic and Similar Work)." Price 2s. 6d. net. London: Published for the Engineering Standards Committee by Crosby Lockwood & Son, 7, Stationers' Hall Court, E.C.; or may be had direct from the offices of the Committee, 28, Victoria Street, Westminster.

Defects in Painting Work.

When the painter's work shows defects, it is customary to blame the workmanship or the materials, or both; but, in most cases, it would be found on really careful investigation, that the mischief was due to adverse conditions. The chief causes of defects Mr. J. Cruickshank Smith enumerates as follows: (1) Influence of weather and climate; (2) nature of the surface; (3) mechanical; (4) chemical action of the undercoatings. Workmanship, it will be seen, is here considered as consisting of mere manual dexterity, the clever as distinguished from the wise choice and application of the materials. The workman simply does what he is told by the foreman, who rarely has the courage to suggest the modifications of procedure which would avoid the faults which experience tells him are about to be risked. Where the work is done to an architect's specification, literal obedience to it is not always kind to the architect, who, however, will be much less prone to go astray if he writes his specification in the light of the information contained in this admirable little book, which should be in the hands of all who are in any way responsible for painting work. Its alphabetical list of faults and defects, with notes on materials and processes, has been compiled by a highly qualified expert, whose trained powers of observation have been here applied with conscientious care.

"Paint and Painting Defects: their Detection, Cause, and Cure." The "Decorator Series of Practical Books," edited by Arthur Seymour Jennings. London: 365, Birkbeck Bank Chambers, W.C. Pages viii. + 174, price 3s. 6d. net.

Geometry of Building Construction.

Geometry, loved by some but loathed by most, would be much more popular if it were properly taught. The subject is too often presented as an elusive abstraction. Augustus de Morgan, who was perhaps our finest mathematician, was among the first to perceive the advantage of concrete demonstration in the teaching of mathematics, and for a time his methods of practical demonstration suffered heavily at the hands of over-zealous disciples. Mr. George Thompson, principal of Toxteth Technical Institute, Liverpool, has, whether consciously or not, adopted De Morgan's principle in elucidating the principles of geometry by applying them to practical building construction. It is his endeavour "to bring the instruction in principles into immediate relationship with their applications, and thus to invest the subject with real practical interest." The five chapters into which the book is divided deal respectively with scales and proportion; angles, triangles, and rectilinear figures; the circle and its applications; orthographic projection; and the ellipse in construction. The plain and direct language and the numerous diagrams give the student all possible aid towards an intelligent comprehension of the geometry of building construction. The manual, although elementary, is very thorough as far as it goes, and is wonderfully cheap considering its size and quality.

We have pleasure therefore in recommending it. It is mainly intended for the student, but even the architect in practice will find it to be of service.

"Broadway Textbooks of Technology." Edited by G. Udny Yule. "Geometry of Building Construction." By George Thompson, Principal of Toxteth Technical Institute, Liverpool. With an Introduction by C.H. Reilly, M.A., F.R.I.B.A., Professor of Architecture in the University of Liverpool. Pages xii. + 130, 8½ ins. by 5½ ins., profusely illustrated, price 1s. 6d. net. London: George Routledge & Sons, Ltd., Broadway House, 68-74, Carter Lane, E.C.

THE L.C.C. DRAFT REGULATIONS
FOR REINFORCED CONCRETE.

(Continued from p. 96, No. 967.)

SLABS.

62.—The effective depth of slabs shall be measured from the compressed edge of the constructional concrete to the centre of gravity of the tensile reinforcement. In the case of floor slabs the effective depth shall not be less than four inches, and the total finished thickness shall not be less than five inches.

63.—The least diameter or thickness of independent reinforcing bars in slabs shall not be less than one quarter of an inch.

64.—All rigidly connected mesh reinforcement in slabs shall be at least one tenth of an inch in diameter or thickness.

65.—There shall be a distance of at least one inch between bars in slabs except at joints and at points where the bars are in direct contact and transverse to one another.

66.—All meshed reinforcement shall be of such dimensions as will enable the coarse material in the concrete to pass easily through the meshes of such reinforcement.

67.—The maximum distance between bars or strands of the tensile reinforcement in slabs shall not be greater than 12 inches, and not more than twice the effective depth of the slab.

68.—In cases where the tensile reinforcement is provided in one direction only, distributing bars or temperature rods shall be provided at right angles thereto. Such distributing bars or temperature rods shall not be further apart than 18 inches, and shall have an aggregate cross sectional area of at least .05 per cent. of the effective cross sectional area of the slab.

69.—Wiring used in slabs for the purpose of holding bars in position shall not be regarded as reinforcement.

RESISTANCE MOMENTS.

70.—The resistance moment of reinforced concrete construction under transverse loads shall be determined by formulas based on the following assumptions—

(a) All tensile stresses shall be taken by the steel.

(b) The strain in any fibre is directly proportionate to the distance of that fibre from the neutral axis.

(c) The tensile elastic modulus of concrete shall be assumed to be equal to the compressive elastic modulus of that material.

(d) The elastic moduli of the concrete remain constant within the limits of the working stress.

(e) The stress-strain curve or graph is a straight line.

(f) The grip between the concrete and steel is sufficient to make the two materials act together.

71.—

Notation for beams and slabs.

A = Area of tensile reinforcement, in square inches.

a = the arm of the resistance moment, in inches.

B = Bending moment of the external loads and forces.

b = breadth of rectangular beam in

inches, or the breadth of the flange of a tee beam in inches,

c = permissible compressive working stress, in pounds per square inch, on the extreme edge of the concrete in compression.

d_s = total depth of slab in inches.

d = the effective depth of the beam in inches, i.e., the distance from the compressed edge of the constructional concrete of the beam to the common centre of gravity of the tensile reinforcement.

E_c = Elastic modulus of concrete in compression.

E_s = Elastic modulus of steel in tension.

l = the length of the effective span of a beam.

$m = \frac{E_s}{E_c}$ = modular ratio.

n = the distance of the neutral axis from the compressed edge of the constructional concrete of the beam, in inches.

$n_1 = \frac{n}{d}$ = neutral axis ratio, $\therefore n_1 d = n$.

p_c = percentage of tensile reinforcement = 100r.

R_c = Resistance moment of the internal stresses in the beam in terms of the permissible compressive working stress.

R_t = Resistance moment of the internal stresses in the beam in terms of the permissible tensile working stress.

r = ratio of A to bd, i.e. $r = \frac{A}{bd}$ and $A = rbd$.

s_s = slab depth ratio = $\frac{d_s}{d}$

t = permissible tensile working stress, in pounds per square inch, in tensile reinforcement.

t_1 = the ratio of the tensile stress in the steel to the compressive stress on the extreme edge of the concrete under flexure = $m \left(\frac{1}{n_1} - 1 \right)$

W = the weight or working load.

(See regulation 48.)

Beams and slabs.

72.—For the purpose of computing the resistance moment of a tee beam, the breadth of the flange shall not be taken at more than—

(a) One fourth of the effective span of the tee beam;

(b) Three fourths of the distance between the centres of the ribs of the tee beams.

(c) Six times the breadth of the top of the rib of the tee beam;

(d) Ten times the thickness of the slab;

whichever is the least, and the overhanging breadth of the flange on either side of the rib shall not be taken at more than four times the thickness of the slab.

73.—When a part of a slab is taken as forming part of a tee beam, the reinforcement in the slab transverse to the beam must cross the full breadth of the portion of the slab forming the flange of the tee beam.

(See regulation 39 as to combined stresses in beams, slabs, and other members.)

74.—In the case of slabs, rectangular beams and tee beams when the neutral axis is within the slab, i.e., tee beams in which r is less than

$$\frac{s_s^2}{2m(1-s_s)}$$

(a) The position of the neutral axis shall be obtained from the equation—

$$n_1 = \sqrt{(m^2 r^2 + 2mr)} - mr, \text{ or}$$

$$n = \left[\sqrt{(m^2 r^2 + 2mr)} - mr \right] d$$

(b) The mean compressive stress on the concrete shall be taken at $\frac{c}{2}$

(c) The arm of the resistance moment shall be obtained from the equations—

$$a = d - \frac{n}{3}, \text{ or}$$

$$a = d \left(1 - \frac{n_1}{3} \right)$$

Approximately, for tee beams, $a = d - \frac{d_s}{3}$

(d) The tensile resistance moment at every cross section shall be at least equal to the bending moment at that section and shall be obtained from the equations—

$$R_t = tA \left(d - \frac{n}{3} \right), \text{ or}$$

$$R_t = tAd \left(1 - \frac{n_1}{3} \right), \text{ or}$$

$$R_t = trbd^2 \left(1 - \frac{n_1}{3} \right)$$

(e) The compressive resistance moment at every cross section shall be at least equal to the bending moment at that section and shall be obtained from the equations—

$$R_c = \frac{c}{2} bn \left(d - \frac{n}{3} \right), \text{ or}$$

$$R_c = \frac{cbd^2}{2} n_1 \left(1 - \frac{n_1}{3} \right)$$

75.—In the case of tee beams, when the neutral axis intersects the rib, i.e., tee beams in which r is greater than

$$\frac{s_s^2}{2m(1-s_s)}$$

(a) The position of the neutral axis shall be obtained from the equation—

$$n_1 = \frac{s_s^2 + 2mr}{2(s_s + mr)}$$

(b) The mean compressive stress shall not be taken at more than

$$c \left[1 - \frac{s_s}{2n_1} \right], \text{ or}$$

$$\frac{cmr(2-s_s)}{s_s^2 + 2mr}$$

(c) The arm of the resistance moment = a where

$$a = d \left[1 - \frac{s_s}{3} \left(\frac{3n_1 - 2s_s}{2n_1 - s_s} \right) \right], \text{ or}$$

$$a = d \left[\frac{s_s^3 + 4mrs_s^2 - 12mrs_s + 12mr}{6mr(2-s_s)} \right]$$

$$\text{Approximately } a = d - \frac{d_s}{2}$$

(d) The tensile resistance moment at every cross-section shall be at least equal to the bending moment at that section and shall be obtained from the equations—

$$R_t = tAa, \text{ or}$$

$$R_t = tbd^2 \left[\frac{s_s^3 + 4mrs_s^2 - 12mrs_s + 12mr}{6m(2-s_s)} \right]$$

(e) The compressive resistance moment at every cross section shall be at least equal to the bending moment at that section and shall be obtained from the equations—

$$R_c = c \left[1 - \frac{s_s}{2n_1} \right] bds_a, \text{ or}$$

$$R_c = cbd_s d \left[\frac{s_s^3 + 4mrs_s^2 - 12mrs_s + 12mr}{6(s_s^2 + 2mr)} \right]$$

76.—A note shall be added to the drawings of all pillars and beams showing the loads which have been provided for.

PART IV.—PILLARS.

77.—The term "pillar" when used in these regulations shall be deemed to include any pillar, pier, post, column, detached support or any other vertical compression member.

78.—Pillars shall be designed on the assumption that the concrete and the vertical bars are shortened in length in the same proportion.

79.—In calculating the strength of a pillar, the maximum value of the ratio of length to effective diameter shall be taken.

80.—The length shall be measured between the lateral supports, irrespective of any splayed work.

81.—The effective diameter shall be measured to the outside of the outermost vertical reinforcement and shall be measured in the direction of the lateral supports which determine the length of the pillar.

82.—All pillars shall be provided with vertical and lateral reinforcement.

83.—Each pillar with rectilinear laterals (binding) shall have at least four lines of vertical reinforcement throughout its entire length.

84.—Each pillar with curvilinear laterals (binding) shall have at least six lines of vertical reinforcement throughout its entire length.

85.—The diameter of vertical rods shall not be less than $\frac{1}{2}$ inch nor greater than 2 inches.

86.—The least diameter of rectilinear laterals (binding) shall not be less than $\frac{1}{8}$ ths of an inch.

87.—The least diameter of curvilinear laterals (binding) shall not be less than $\frac{1}{8}$ th of an inch.

88.—The pitch of the laterals shall not exceed $\frac{1}{10}$ ths of the effective diameter of a pillar at any part of its length, and shall not exceed $\frac{1}{3}$ ths of the effective diameter for a length of $1\frac{1}{2}$ diameters from its ends.

89.—The lateral reinforcement shall be firmly secured at each end.

90.—The total cross-sectional area of the vertical reinforcement in any pillar shall not be less than 1.0 per cent. of the area of the hooped core.

91.—The volume of lateral reinforcement shall not be less than 0.5 per cent. of the volume of the hooped core.

92.—Joints in the vertical reinforcement of pillars shall only be made at a floor level or other point of lateral support.

93.—Butt joints in vertical reinforcements shall be at right angles to the length of the rods.

94.—All joints in the vertical reinforcement shall be provided with steel or iron

- (a) Close-fitting sleeves, or
- (b) Suitable clamps, or

(c) Properly bound splices having an overlap at least equal to twenty times the diameter of the bar.

In cases where there may be tension in the pillar the joints shall be formed as required by (b) or (c).

95.—In cases where there is a change in section of the pillar, the vertical bars shall have an overlap at least equal to forty times the least diameter of the thicker bar, and they shall be bound together if possible.

96.—In the case of rectangular pillars

in which the ratio between the greater and the lesser diameter exceeds one and a-half, the cross section of the pillar shall be sub-divided by cross-ties, and the number of vertical rods shall be such that the distance between the rods along the longer side of the rectangle shall not exceed the distance between the rods along the shorter side of the rectangle.

97.—

Notation for pillars, struts and other compression members.

A = Effective area of the pillar, i.e. the area bounded by the lateral reinforcement measured to the inside of the hooping.

A_b = cross-sectional area of one bar of the binding or lateral reinforcement.

A_v = Area of the vertical reinforcement.

c = the permissible direct compressive stress.

See Regulation 35.

d = effective diameter.

f = form factor, depending upon form or type of laterals.

i = the increased stress permissible in the core of a pillar suitably hooped.

l = the actual length of the pillar as defined in the regulation numbered 80.

m = modular ratio = $\frac{E_s}{E_c}$

P = the permissible load or pressure on pillars with both ends fixed and with a ratio of virtual length to effective diameter not exceeding 12.

p = pitch of the laterals.

pc = percentage of reinforcement = 100r.

r = ratio of the volume of lateral reinforcement to the volume of the hooped core in any given length of pillar.

s = spacing factor depending upon the spacing or pitch of the laterals.

v = virtual length of the pillar, strut or other compression member for different conditions of the ends.

98.—A pillar, strut or other compression member shall be deemed to have fixed ends when the ends are sufficiently secured to other parts of the construction having such rigidity as will maintain the axis at the ends in its original direction under all loads less than the crippling load.

99.—In a pillar with fixed ends the stress on the concrete in the area bounded by the lateral reinforcement shall not exceed i , where

$$i = c [1 + f s r]$$

100.—The required ratio of lateral reinforcement may be obtained from the equation—

$$r = \frac{i - c}{c f s}$$

The actual ratio of lateral reinforcement provided, in either round or square pillars, may be obtained from the equation—

$$r = \frac{4 A_b}{d p}$$

See reg. 81, table in reg. 100, and reg. 104.

101.—Notwithstanding any other provision in these regulations the increased stress in the concrete of pillars shall not exceed that shown in the following table—

Proportion by volume. Increased stress.

Cement.	Sand.	Coarse material	i .
1	2	4	1.3c
1	1½	3	1.4c
1	1	2	1.5c

The working stress in the vertical rein-

Table showing the value of $f s$

Form of lateral reinforcement or binding.	Form factor f .	Spacing of laterals throughout the length of the pillar (in terms of diameter of hooped core).	Spacing factor s .	Value of $f s$.
Helical (curvilinear on plan)	1.0	2d or less	32	32
Helical do.	1.0	3d	24	24
Helical do.	1.0	4d	16	16
Circular hoops	.75	2d or less	32	24
Circular hoops	.75	3d	24	18
Circular hoops	.75	4d	16	12
Rectilinear ...	.5	2d or less	32	16
Rectilinear ...	.5	3d	24	12
Rectilinear ...	.5	4d	16	8
Rectilinear ...	.5	5d	8	4
Rectilinear ...	.5	6d	0	0

forcement shall not exceed m times the stress in the concrete.

See Regulation 48.

102.—The permissible load or pressure on pillars with both ends fixed and with a ratio of virtual length to effective diameter not exceeding 12 shall be obtained from the equation—

$$P = i [A + (m - 1) A_v]$$

103.—For pillars with both ends fixed and with ratios of virtual length to the effective diameter from 12 to 24, the permissible load or pressure shall be obtained from the following table—

For a ratio of	12	14	16	18	20	22	24
Permissible load	P	$.75P$	$.55P$	$.45P$	$.35P$	$.30P$	$.25P$

For intermediate ratios the stress shall be proportionate to the above.

Pillars of greater ratio of virtual length to effective diameter than 24 shall not be used.

In struts or compression members not coming within the definition of pillars, the sum of all the stresses shall not exceed the permissible direct compressive stress.

The virtual length of such struts or compression members shall not exceed 12 times the least effective diameter.

104.—For the different conditions of the ends of pillars or struts mentioned in the following table, the permissible load shall be limited as indicated therein, or the permissible load may be ascertained by using the corresponding value of the virtual length in such table in conjunction with the regulations numbered 102 and 103—

Condition of ends.	Permissible load.	Virtual length $=v$.
Both ends fixed	{ See regulations 102 and 103 }	$v = l$
One end fixed and one hinged or imperfectly fixed ...	$\frac{1}{2}$ { permissible load for both ends fixed }	$v = \sqrt{2} l$
Both ends hinged or imperfectly fixed	$\frac{1}{4}$ { permissible load for both ends fixed }	$v = 2l$
One end fixed and the other end not hinged guided stayed or supported in all directions ...	$\frac{1}{16}$ { permissible load for both ends fixed }	$v = 4l$

105.—In the case of arches or other similar constructions the algebraic sum of the stresses at any part shall not exceed the permissible stresses set out in the regulations numbered 35 and 36.

(To be concluded).

FIRE PREVENTION NOTES.

Terrible Factory Fire in America.

A most disastrous fire, of which, at the moment of writing, the particulars are meagre, occurred at Binghampton, New York, on July 22nd. The scene was an overall factory, in which 125 girls were employed, and it was feared that about a hundred of them had perished. In the first cablegrams it is stated that fire-drill was regularly practised on the premises, but that the girls lost all self-command and were overwhelmed with panic. Unhappily, this is what usually occurs among girls and women who find themselves in danger from fire. They completely falsify the saying that "there is safety in numbers," for while the majority of them may be, at the outset, amenable to discipline, one or two in a crowd are nearly certain to give way to hysteria, and fire itself does not spread so instantaneously as this kind of panic.

Brickwork and Timber.

No particulars are yet to hand as to the construction of the Binghampton building, beyond the statement that it was of brickwork, with timber supports. That it was reduced to ruins with tremendous rapidity is only what might have been anticipated, for although brick and timber are often said to make a very good fire-resisting structure, yet the degree to which this is true depends very much on the quality of the brickwork and on the scantlings and character of the woodwork. A brick and timber structure may be either so substantial as to defy disintegration by fire, or so flimsy as to collapse utterly and with almost incredible celerity. It is stated that at the Binghampton building the flames spread instantly from the lower to the upper floors, and it is therefore evident that the timbers could not have been of the massive size necessary for fire-resistance, and that the modern methods of fireproofing construction, which aim at insuring the isolation of an outbreak, could not, in this particular instance, have been adopted. In such cases the problem is to shut out smoke and flame without in the same action cutting off the means of escape, and it is not always easy of solution. To cope with it successfully, the planning must be skilful, and there must be an ample system of up-to-date fire-resisting doors and staircases, while the floors must necessarily be of first-class fire-resisting design and construction. Windows, too, must be made as fire-resistant as possible—a provision that within recent years has been extraordinarily well met by the wired glass that is now coming into general use in factory and warehouse construction. It has been sometimes rather feebly objected that such glass is only efficacious when the factory and the windows are closed. It is perfectly obvious, however, that by means of a simple mechanical device a whole range of windows could be closed in one operation, and that although, in the haste to get out of a room in which an outbreak of fire had occurred, there might be a very natural neglect to close the windows, yet in the other rooms there would be less excitement and confusion, and the instantaneous operation of the lever would be resorted to as a means of self-defence. Then, the occupants having full confidence that the means of escape were ample and efficient, and that the fire had been, at all events temporarily, isolated, orderly and almost leisurely escape could be effected.

Panic and the Remedy.

Panic is almost entirely the effect of knowledge of an opposite character. Life-destroying fires have been so frequent that

the public dread of them is ever present in a rather fatalistic form, resulting in the wild despair which ensues immediately upon an outbreak. The mere knowledge that a sea-going vessel was of water-tight-compartment construction has upon many occasions inspired the passengers with so much confidence that, at a crisis, they have shown a serene indifference which, alas, was not fully justified in its most recent exemplification. It is nevertheless reasonable to suppose that public confidence with respect to fire-resistance will in time be restored as knowledge of fire-prevention methods and experience of their efficacy becomes more common. Much loss of life by fire has been the result of opposite knowledge and experience, want of confidence often causing unnecessary panic, resulting in deaths which might have been avoided, even where the building was easily combustible. Given an efficiently fire-protected building, and consequent good morale on the part of the inmates, loss of life by fire would be exceedingly rare, instead of being, as now, a commonplace concomitant of civilisation.

Enormous Fire Losses.

It might have been supposed that the United States stood easily first against all comers in the matter of fire losses. No doubt the States still stand unrivalled in that bad eminence with respect to aggregate losses, but in loss per head of the population New Zealand takes the lead. In the report of the State Fire Insurance it is recorded that the Dominion fire losses during the past ten years probably exceed six millions sterling, representing the largest loss per head of any country, the United States being, however, a close competitor. Remedies suggested are—stricter safeguards for wooden buildings, and co-operation among insurance companies to prevent over-insurance. The latter suggestion is, perhaps, not altogether so sinister as at first sight it might appear, if we remember that over-insurance may beget over-confidence and excessive carelessness. For this condition, whatever it may portend, the insurance companies are themselves responsible, and it is for them to provide the remedy.

OBITUARY.

Mr. J. Vickers Edwards.

For ten years Mr. J. Vickers Edwards, a West Riding County Council architect, whose recent death is announced, had designed many schools, asylums, and other official buildings, and had been frequently an assessor for those which had been put up to competition.

Mr. Owen William Davis.

As manager to Sir M. Digby Wyatt, Mr. Owen William Davis had assisted in designing many public buildings. He had designed much interior decoration in the Pompeian style and had exhibited occasionally at the Academy. He had also done a great deal of wall-paper and furniture designing.

Mr. Charles J. Greaves.

Mr. Charles J. Greaves, one of the oldest North London builders, has died suddenly, in his eightieth year, and on the fifty-fifth anniversary of his wedding day. He was in early youth apprenticed to a Stockwell builder to learn "plastering and candle-making," which was in those days not a very rare combination of businesses. Fifty-five years ago he began business as a builder in Homerton.

COMPETITIONS.

Baths at Benwell, Walker, and Heaton, Newcastle-on-Tyne.

The awards in the above competition have been made by the assessor, Mr. Herbert W. Wills, F.R.I.B.A., as follows: 1st, Mr. A. W. S. Cross, F.R.I.B.A. (London); 2nd, Messrs. Wallis and Bowden (London); 3rd, Messrs. Wright and Chapman (Newcastle-on-Tyne).

New Infirmary, Reigate.

At a meeting of the Reigate Board of Guardians last week, the Works Committee reported that they had made a selection of architects for the proposed limited competition for designs for the new infirmary. Thirty-six architects submitted their names for the competition, of whom 12 resided or practised within the Union, and the Committee made the following selection: Architects residing or practising within the Union, Messrs. D. J. Barry (Reigate), T. R. and V. Hooper (Redhill), C. Nicholas (Redhill), E. Penfold (Reigate), J. M. Pym (Reigate), C. E. Salmon (Reigate), G. Gordon Stanham (Coptthorne), and Paxton Watson (Merstham). Architects not residing or practising within the Union: Messrs. E. T. Hall (London), Snell and Spoor (Maida Vale), Wheeler and Godman (Horsham), and H. W. Wills (London). The author of the design placed first by the Guardians was to be employed to carry out the work, and to receive a fixed remuneration of three hundred guineas and reasonable travelling expenses. A premium of twenty guineas was to be paid to the architect whose design was placed second. It is believed that the buildings will not cost less than £6,000.

COMPETITIONS OPEN.

AUGUST 25.—BLOCK OF COTTAGE HOMES, TENDRING.—Tendring Union Guardians invite competitive designs, specifications, and estimates for a pair of cottage homes for children. Particulars from Mr. A. J. H. Ward, Clerk to the Guardians, Tendring Union, Harwich.

SEPTEMBER 1.—TOWN PLANNING, HIGH WYCOMBE.—Schemes for the town planning of the borough are invited by the Borough Council. Premiums £25, £10, and £5. Particulars, T. I. Rushbrooke, Borough Surveyor, High Wycombe.

OCTOBER 31.—TOWN PLANNING SCHEME, YORK.—Premiums of £100, £50, and £25 are offered for a town-planning scheme for certain areas in and near York. Particulars, F. W. Spurr, City Engineer, Guildhall, York.

NOVEMBER 1.—ROYAL PALACE AND LAW COURTS, SOFIA.—Particulars, Commercial Intelligence Branch, Board of Trade, Basinghall Street, E.C.

NO DATE.—FIRE STATION, BLACKBURN.—Blackburn Corporation invite designs for a new fire station and firemen's dwellings, from architects practising within the borough. Premiums, £100, £50, and £25. Assessor, Mr. F. G. Briggs, F.R.I.B.A. Apply, Town Clerk, Town Hall, Blackburn.

NO DATE.—WORKING CLASS DWELLINGS, BRADFORD.—The City of Bradford Council invite architects to submit designs for laying out an estate of 50 acres and for erecting small houses thereon for the working classes. Mr. Henry T. Hare, F.R.I.B.A., will act as assessor. Particulars may be obtained on application to Frederick Stevens, Town Clerk, Town Hall, Bradford. (Deposit, one guinea.)

BUILDERS' PROFITS AND THE REVENUE BILL.

The Revenue Bill, which was introduced on May 7th, has now been printed and issued. It is understood that the Government are still unable to say whether the Bill can be passed this session or not, and that this may depend in part on the way in which its provisions are received. It is a Bill of fifteen clauses, and its principal provisions are framed to confer exemptions from increment value duty upon builders and others developing estates for building purposes and upon small investors in land and house property.

Builders' Trade Profits Exempted.

According to an official statement which is issued, the Bill gives effect to the intentions of the Government, as expressed in the House of Commons, to make it absolutely clear that no part of a builder's trade profits shall be subject even to the possible operation of the increment tax.

The clauses of the Bill which frank building estates in course of development and free builders from the possibility or apprehension of any claim for duty in respect of trade profits were settled as the result of a conference between the Chancellor of the Exchequer and the legal representatives of the National Federation of Building Trades Employers, and approved and accepted by them as removing the apprehensions occasioned by the decision in the Lumsden case, and as satisfactory from the point of view of those engaged in the building trade.

As regards houses and shop property and other buildings, in all cases where the value of the building exceeds the value of the site, the vendor may have the increase in site value (if any) on the occasion of a sale determined by valuation without reference to the price obtained.

No increment value duty will therefore be payable on a sale of such property by a builder or investor on any profit he may make, except as to profits which may arise out of an increase in the value of the bare land apart from the buildings, and which are not due to any expenditure, or the execution of any works, on his part.

A sale of such property at a price above its market value, or at an increased price due to a rise or recovery in the value of the buildings, will not involve any claim for duty.

Relief for the Small Investor.

The small investor in land or houses whose income does not exceed £160 is wholly relieved from the incidence of the tax in respect of any sale of a property not exceeding £500 in value.

Builders and land owners engaged in developing land for building purposes receive further important concessions under the Bill.

The clauses in the Finance Act which exempt from taxation any increase of value in land attributable to the execution of any works or the expenditure of money by the owner are extended to exempt any increase of price obtained by reason of financial assistance given to purchasers, or by reason of any other arrangement made by the vendor to facilitate sales.

In the case of land in the course of development by a builder or landowner for building purposes, though the value of the bare land may have risen from causes independent of the development of the estate, no claim for increment value duty

will be made during certain periods allowed by the Bill.

After the land has been prepared for building purposes by an expenditure (e.g., on roads or sewers) equal to the full site value of the land, or £200 per acre, whichever be the lesser sum, the land is franked from increment value duty, and a certificate of exemption given, for a period of five years, and as suitable houses are from time to time erected each building with its appurtenant land is further franked from duty for a period of five years from the date of erection.

When these periods of five years have elapsed, builders' profits and occasional profits on sale, not due to an increase in the site value, will still be exempted from duty under the provisions of the Bill above referred to.

Property owners who have neglected to claim "substituted site value" within the time allowed by the Finance Act (1909-10) are given a further opportunity to make the claim, if it is in their interest to do so, within three months after the first occasion on which a claim for duty arises.

IN PARLIAMENT.

(By Our Press Gallery Representative.)

Another Ventilation Inquiry.

A Select Committee has been appointed by the House of Commons to consider the ventilation of the House. The members' rooms will come within the scope of the inquiry, as well as the Chamber itself.

Admiralty Arch Scheme.

Mr. Bird asked for information as to the progress of the negotiations in connection with the completion of the approach to the Admiralty Arch.

Mr. Wedgwood Benn, in reply, said: Several conferences have taken place between the representatives of the London County Council, the Westminster City Council, and the First Commissioner of Works. They have agreed to a scheme which meets with the First Commissioner's approval, and His Majesty's Government has undertaken to contribute one-third of the necessary cost. The scheme and proposed architectural design will shortly be submitted to the two local authorities for their consideration and approval, and the First Commissioner hopes to be able to place a model of the proposed design in the tea-room at an early date.

London University.

Mr. Asquith has informed Mr. King that the Government have no present intention of making a grant towards the acquisition of a new site for London University.

Government Buildings in Dublin.

Mr. Masterman, in reply to Mr. Brady, stated that no delay had occurred in the delivery of the details of stonework for the new Government buildings in Merrion Street; Dublin, nor was there any danger of delay in the completion of the building from this cause. Stone had been cut and stacked sufficient for the probable progress of the building for six or eight months to come. The building would progress steadily and further stocks of cut stone would be prepared as soon as they were required.

The New Delhi.

Mr. Montagu, Under-Secretary for India, informed Mr. King that the terms of the agreements with the selected architects for the new Delhi had not yet been settled.

Mr. King asked whether the early erec-

tion of any buildings in the new Delhi was intended, other than those to be built by the selected architects, and if so whether such buildings would be given to architects chosen by competition.

Mr. Montagu said the Secretary of State had no exact information as to the intentions of the Government of India in the matter, but he assumed that the erection of other buildings could not be entered upon until the alignments of the street and roads, and other pending questions had been finally settled by the Delhi Executive Committee. The Government of India had stated their wish to adopt competition in some form or other for these buildings.

THE ADMIRALTY ARCH.

As the result of negotiations that have been proceeding for some months past, a practicable scheme for the completion of the Admiralty Arch at Charing Cross is said to have been evolved. It has been under the consideration of a joint-committee of the following representatives of the Office of Works, the London County Council, and the Westminster City Council:—

Office of Works.—Lord Plymouth, Mr. Reginald Blomfield (President of the Royal Institute of British Architects), and Mr. Lionel Earle (Secretary of the Office of Works).

London County Council.—Mr. Cyril S. Cobb (Chairman), Lord Peel (Chairman of the Improvements Committee), Mr. A. T. Taylor (Vice-Chairman of the Improvements Committee), and Mr. Henry Ward.

Westminster City Council.—The Mayor (Mr. Lyon Thomson), the ex-Mayor (Mr. E. L. Somers Cocks), and the Chairman of the Improvements Committee (Mr. W. S. E. Davis).

The scheme that is suggested for acceptance came before the Westminster City Council last Thursday, with the following recommendation from the Improvements Committee: "That, provided that the Government and the County Council each agree to contribute one-third of the cost, the Council do express their willingness to contribute a sum not exceeding £38,333, being one-third of the net cost of the scheme for the further extension of the Mall to Charing Cross Improvement."

The plans submitted to the Westminster City Council show the proposed new road line without giving details of the architecture. The design provides for a roadway 90 ft. wide, giving a suitable approach to the Mall from the Strand and providing a wide view of the Arch from Charing Cross.

It is understood that both the Government and the London County Council are willing to contribute their respective shares.

Change of Address.

Messrs. A. and J. Wheeler, builders and contractors, announce that as from July 21st their offices and works have been removed to Imperial Wharf, Tunnel Avenue, Greenwich, S.E.

The Leaning Tower of Pisa.

A committee presided over by the Director-General of Fine Arts, finding that the condition of the leaning tower of Pisa has become dangerous, has decided to drain the subterranean part of the tower, into which water from the Arno has percolated, and to broaden the foundations.

MOTOR NOTES FOR BUILDERS AND CONTRACTORS.

[Specially Contributed.]

In the "Journal" for July 25th, p. 680, the writer put forward a series of questions, in which were summarised in the briefest possible way the points which the prospective purchaser should consider when about to choose a manufacturer. A few similar questions are appended with respect to the design of the truck.

The Design of the Truck.

1. Is it strictly a truck design? Is the machine a converted pleasure car?

There have been a great many compromises whereby touring car parts have been used for freight handling machines with very indifferent results, and it is advisable to ascertain whether the design has been prepared to meet the severe service which truck work demands.

2. On what particular experience is design founded? Has the organisation had experience enough to thoroughly comprehend the requirements of merchandise transportation service?

This is a deep question and experience alone can dictate the course of design to meet the requirements.

3. Is the machine an organisation development?

If the organisation consists of a group of well-qualified men there is seldom question as to the reliability of the machine.

4. How often has the design been changed?

Frequent design changes should be unnecessary.

5. Are there many different models?

Obviously the energies of a manufacturing concern may be spread over too broad a field.

6. How different are the models?

If there is no serious difference in design between models there need not be much question about the results to be secured from the machines.

7. Are there any original or freakish features?

Novelty is sometimes a dangerous departure from standard practice.

8. How many years has design been in use?

Answer to this question will indicate its stability.

9. To what extent are stock parts incorporated?

Stock parts when produced by large manufacturers are even more reliable than parts having individualities and produced by small manufacturers.

10. If stock parts are used, how stable are the makers of the parts?

This is a serious question in view of the necessity for securing renewal parts throughout the life of the machine.

11. What patent devices are used?

Special features, unless particularly meritorious, are to be avoided, as they are frequently more expensive than useful.

12. What imported parts are used?

The readiness of supply and the cost of parts are involved in the answer to this question.

13. Is price list of complete parts available?

Evidence of parts price list indicates that the manufacturer has his proposition well developed.

14. What is the ratio of total parts prices to chassis price?

The present practice tends toward equalising the total parts prices with the chassis price.

15. How soon is the present design likely to become obsolete?

Answer to this question requires special knowledge of the trend of design and the progressive development of the industry.

16. To what extent is design fixed by investment in special tools?

Permanent investment on the part of the producer is a guarantee of reliability to the user.

17. Are obsolete features being perpetrated on this account?

Care should be taken to ascertain that the company is progressive enough to make improvements irrespective of its permanent investment in tools.

18. Is design sound enough to make such investment an advantage?

Where the machine is a well-developed product this is a guarantee to the user.

19. What is the difference between stated capacity and actual capacity?

It should be remembered that the nameplate does not always indicate the true value of the machine.

20. How do engine specifications compare with other machines of same rated capacity?

This comparison will indicate the relative performance capacity of the truck.

21. How do tyre equipment, axles, frames, transmissions, etc., compare with other machines of same rating?

Inquiry in this direction will frequently be a guide to the status of the machine with regard to standard practice.

22. Has the machine any overload capacity?

This factor has a serious influence in placing a truck in one class or another having a higher or a lower capacity than the normal rating.

23. Are the parts readily accessible and easily removable?

This will seriously influence the cost of maintenance.

24. Are parts numbered and interchangeable?

This likewise influences the cost of operation.

Dennis Bros.

Among the notices of the exhibition of commercial vehicles at Olympia which we gave in last week's issue we had intended to include that of Messrs. Dennis Brothers, which, however, had to be held over for want of space.

The following are some of Messrs. Dennis Brothers' exhibits: One new type 40 h.p. 5-ton chassis, 4-cylinder engine, cylinders cast separate, bore and stroke 127 by 130 mm.; four-speed gear-box, ample size vertical tube, detachable radiator, supported on trunnion joints, steel wheels. This engine is fitted with a White and Poppe paraffin carburettor, in conjunction with an independent petrol system, the chassis being one of a number built to the repeat order of a firm of brewers. A 28 h.p. 2-ton tilt van, with specially constructed large roomy body for the convenience of new furniture. The engine is of 4 cylinders, bore and stroke 110 by 130 mm., four-speed gear-box. A 35 h.p. 25-seater torpedo char-a-banc with special luxurious body, painted ivory-white and trimmed in straight-grained red leather. One standard 18-h.p. double-bedded ambulance, fitted with latest design of stretcher, built to order of the Metropolitan Asylums Board, bringing their fleet of "Dennis" ambulances to fifty-eight. One

special War Office subvention type chassis, fitted with worm gear, new design, in which the worm and the worm wheel can be removed without the weight being taken off the back axle. One 60 h.p. 400-gallon turbine motor fire engine, as supplied to the London Fire Brigade, who have twenty-eight similar machines in service and on order. One 45 h.p. 300-gallon turbine motor fire engine, built to the order of the Basingstoke Corporation. One 30 h.p. 150-gallon turbine motor fire engine and entirely new model small engine, suitable for country districts and small brigades.

Motors for Road Work.

Contractors for roads, pavements, etc., where the material used is macadam, or gravel and sand, will require bodies of a type that will dump without elevating, and the materials used require that they may be either discharged in one spot or spread over a considerable surface. Exhaust gases from the motor may with great economy be used to heat the bodies carrying the hot material to the workmen. The dumping angle for hot asphalt and other hot stuff used in road building must be approximately 60 degrees. Hopper-bottom bodies could be employed to advantage in this line, as well as the standard dump body, which either slides to the rear and dumps, or is pivoted to the rear of the chassis frame, and elevates from the front end to the height necessary.

Street constructors require that material shall be carried to a point ahead of the works, and this makes it necessary for the trucks to travel in soft ground, where the wheels sink several inches into the dirt. This condition may be relieved by laying a few long planks of about 18 in. width and 2 in. to 2½ in. thick, lengthwise, in the places where the ruts are deepest. The truck wheels will travel along the planks without splitting or throwing them, and they can be moved to one side and used again.

SOCIETIES AND INSTITUTIONS.

LONDON MASTER BUILDERS' ASSOCIATION.

The ordinary meeting of the council was held on July 17th at Koh-i-Noor House, Kingsway, W.C., the chair, in the absence of the president, being occupied by Mr. Edmond J. Hill, junior vice-president.

Reports of the special committee were received, and instructions issued thereon.

Correspondence relating to matters of great importance to the trade was considered.

A considerable number of new members were elected.

BUILDERS' BENEVOLENT INSTITUTION.

The sixty-sixth annual general meeting of the Builders' Benevolent Institution was held at Koh-i-Noor House, Kingsway, London, W.C., on July 23rd, when the annual report and the audited accounts for the past year were received and adopted.

The following election of officers for the coming year took place: President, Mr. Fred. Shingleton (Messrs. Leslie and Co., Ltd.); treasurer, Mr. Frank May, J.P. (Messrs. Holland and Hannen and Cubitts, Ltd.); hon. auditors, Mr. Hubert S. Ward and Mr. John T. Bolding.

THE R.I.B.A. JUNE EXAMINATIONS

Pass List.

The following is the pass list for the June examinations of the Royal Institute of British Architects:—

Preliminary.

Of the 168 candidates admitted 48 were exempted from sitting, and the remaining 120 were examined, with the following results:—

Centre.	Number Examined.	Passed.	Relegated.
London	62	38	24
Belfast	2	2	0
Bristol	10	9	1
Glasgow	3	2	1
Leeds	10	7	3
Liverpool	8	5	3
Manchester	19	14	5
Newcastle	6	6	0
	120	83	37

The 131 passed and exempted candidates, who have been registered as Probationers, are as follows:—

W. Allan (London).	S. H. Jeffrey (Ashford).
C. D. Andrews (London).	W. C. Johnston (Carlisle).
E. H. Ashburner (Ulverston).	O. O. Jones (London).
A. M. Barrowcliff (Loughborough).	W. M. Keesey (Chelsea).
A. N. Battle (Potter Hanworth).	M. R. Kelly (Belfast).
A. F. Beer (Dover).	G. E. King (Nottingham).
A. C. Begbie (Dewsbury).	E. W. Lankfer (Sheffield).
J. H. Blackwell (Kettering).	F. J. Lauder (Letchworth).
R. C. Blampied (London).	S. H. Lewis (Twickenham).
A. G. Brian (Berkhamsted).	A. V. Lobban (Ayr).
H. C. J. Brown (Ramsey).	L. G. Lovell (Bowdon).
T. L. Browne (Newcastle).	E. Lyne (London).
H. C. B. Brundle (London).	M. S. McCullum (Bro-dick).
T. O. Bushell (Manchester).	J. McAleery (Belfast).
R. H. Cain (Douglas).	J. A. McAulay (Liverpool).
W. H. Caley (Tunbridge Wells).	H. S. McCartney (Manchester).
G. Capon (London).	W. McCrear (Kirkcaldy).
T. J. F. Cave (Yeovil).	T. McGarrigle (Leven).
E. I. Clark (Bampton).	H. Metcalfe (Blackburn).
N. Clifton (London).	J. S. Milner (Helston).
T. A. H. Concanen (London).	C. E. Moon (Birmingham).
W. N. H. Crook (Oxford).	J. D. M. Moore (London).
D. H. Darvill (Slough).	T. M. Morgan (Aberdare).
G. L. Davis (Owesity).	R. R. Neely (Belfast).
E. H. Doe (Maidstone).	G. B. E. Norburn (Southsea).
W. E. Dow (Kirkcaldy).	L. R. Pickard (Sutton-in-Ashfield).
W. T. E. Duncan (Brighton).	P. H. Pilditch (Weybridge).
T. Edmondson (Burnley).	R. W. Potts (Edinburgh).
W. R. Foster (Gravesend).	N. D. Quick (Swansea).
W. W. Friskin (London).	E. Reily (Southport).
R. I. Gough (Birmingham).	H. B. Richardson (Darlington).
G. E. Greensill (Can-nock).	H. A. Richardson (Bolton).
W. J. Gregory (London).	A. F. Ryder (Wakefield).
W. L. Haill (Bristol).	J. Sadler (Dundee).
A. F. Hall (Coventry).	T. A. Sanders (Southport).
B. J. L. Hall (Windsor).	R. S. Sargent (Hastings).
H. J. Hall (Penarth).	H. Schein (London).
R. L. O. Hall (Leeds).	N. E. Scott (Dublin).
J. R. Hardy (Merthyr Vale).	G. S. Schiber (London).
S. B. N. Harrop (Sheffield).	V. C. E. Smith (Southsea).
J. L. Harvey (Devonport).	L. E. J. de Soissons (London).
A. Hawkins (Cheltenham).	W. N. Spence (Ranelagh).
G. J. Healey (Mone-ton).	J. A. Stansfield (Burnley).
V. A. J. Helbing (East Ham).	A. K. Stewart (Bangor).
R. G. Hodges (Mitcham).	C. Stott (Manchester).
T. Holdsworth (Burnley).	V. J. Streadwick (London).
A. J. Honer (Sheffield).	F. R. Streeter (Thorpe Bay).
J. T. Hood (Dundee).	T. W. Sutcliffe (Rochdale).
J. E. Hopcraft (Limpsfield).	A. H. Sykes (Huddersfield).
J. L. Howard (Marple).	D. H. Sykes (Birmingham).
P. S. Hudson (Chelsea).	M. N. Sykes (Leeds).
G. V. Hurd (Blackhill).	T. O. Tasker (Scarborough).

D. W. Thomas (Cardiff).	W. P. Wigglesworth (St. Albans).
S. W. Tiffin (London).	F. C. Willey (London).
W. G. F. Trollet (London).	R. J. Williams (Swansea).
B. W. Turnbull (London).	J. Wilson (Glasgow).
F. W. Turner (Aylesbury).	D. C. Wiltshire (Bournemouth).
F. Vairey (Leeds).	E. W. Winks (Work-sop).
G. P. Vassilikos (London).	B. C. Winsor (King-ston-upon-Thames).
E. N. L. Walker (London).	A. G. Wood (Paddock Wood).
I. Walker (Carlisle).	H. Wood (London).
H. F. Wharf (Hull).	J. Wood (Edinburgh).
A. S. Whitburn (Woking).	R. Wood (Stoke-on-Trent).
C. W. White (Bristol).	W. W. Wood (Arnold).
R. C. White (Ayles-bury).	S. W. Woodley (London).
	G. Young (Jarrow-on-Tyne).

Intermediate.

In the Intermediate Examination, qualifying for registration as Student R.I.B.A., 99 candidates were examined, with the following results:—

Centre.	Number Examined.	Passed.	Relegated.
London	46	26	20
Belfast	2	2	0
Bristol	9	6	3
Glasgow	4	2	2
Leeds	11	11	0
Liverpool	7	5	2
Manchester	15	7	8
Newcastle	5	2	3
	99	61	38

The passed candidates are as follows, the names being given in order of merit:—

H. S. Stephens (London).	C. E. Cornish (Barn-staple).
J. S. Lawns (Dunfer-mine).	T. George (Swindon).
L. H. Shattock (Wimble-don).	E. C. Lavender (Wal-sall).
W. S. Fyfe (Sheffield).	A. Ainsworth (Man-chester).
W. J.ougill (Bradford).	C. H. Aslin (Sheffield).
M. B. Taylor (Bir-mingham).	G. A. Booker (Shef-field).
L. S. Ford (Cobham).	C. B. Chadwick (Dewsbury).
B. E. Saunders (Bir-mingham).	H. B. Chisholm (London).
J. Blackford (Chadde-ley).	C. L. Clayton (Brighton).
N. H. Pratt (Notting-ham).	G. A. Cosser (Porte-mouth).
J. A. Howell (Oxford).	E. V. Dyson (Leeds).
R. B. Hall (Cardiff).	S. Faraday (Liscard).
J. Dickinson (Rother-ham).	S. S. Fausset (Belfast).
G. Crossley (Bradford).	E. W. Filkins (Graves-end).
R. Frater (Belfast).	T. C. Hamilton (New-castle).
L. G. Whitbread (Man-chester).	C. W. F. Haseldine (Nottingham).
G. N. Hill (Wallasey).	F. Holroyd (Leeds).
R. Bowes (Falls-worth).	R. Jackson (London).
A. A. Foote (Edin-burgh).	H. A. Lister (Shrews-bury).
R. Cawkwell (Sheffield).	W. H. Martin (London).
G. W. Callender (Lon-don).	C. Medley (Keighley).
G. A. Rose (Wimble-don).	W. N. J. Moscrop (Dar-lington).
A. T. Spence (London).	A. J. Palmer (Bristol).
G. O. Venn (Warring-ton).	B. R. Penderel-Brod-hurst (London).
T. R. L. Palmer (Leeds).	W. F. Pennington (Kendal).
C. Grellier (Epsom).	H. C. Richardson (Bir-mingham).
F. A. Barley, Westcliff-on-Sea).	F. D. Sowerby (Lon-don).
R. Kirby (Dulwich).	F. Sutcliffe (Rathgar).
T. S. Bowes (Cardiff).	L. Tomlinson (Leeds).
R. S. Johnson (Croy-don).	H. F. Walker (London).
W. J. Brown (Taun-ton).	

The number of failures in each subject of the Intermediate Examination was as follows:—

A. Principal Styles and General History of Architecture	22
B. 1. Simple Applied Construction	29
B. 2. Theoretical Construction	23
C. 1. Historical Architecture:—	
(a) Greek and Roman	4
(b) Byzantine and Romanesque	0
(c) French and English Gothic	3
(d) Italian, French, and English Renaissance	3
C. 2. Mathematics and Mechanics	0
C. 3. Design	18

Exemptions from the Intermediate.

The following probationers (of London except where otherwise stated) possessing the certificates required under the regulations were exempted from the Intermediate Examination and have been registered as students:—

W. Allan [First-class Certificate, Liverpool University].	G. H. Mackenzie (London).
A. M. Barrowcliff, Loughborough [First-class Certificate, University College, London].	J. E. March (London).
W. W. Friskin [Senior Certificate, Glasgow School of Architecture].	A. E. Mayhew (London).
J. O. B. Hitch [Four Years' Course, Architectural Association].	W. W. Nimmo (London).
M. S. McCullum [Senior Certificate, Glasgow School of Architecture].	H. R. Peerless (London).
A. E. Maxwell [Four Years' Course, Architectural Association].	A. W. Phillips (Swansea).
W. Paterson, Edinburgh [Diploma, Edinburgh and Heriot Watt Colleges of Art].	C. V. Ponder (London).
L. E. J. de Soissons [Ecole des Beaux-Arts Paris].	J. C. Rogers (London).
T. F. H. White [Four Years' Course, Architectural Association].	T. S. Rushworth (Harlow).
J. Wood, Edinburgh [Diploma, Edinburgh College of Art].	T. Spencer (London).

The Final and Special.

The Final and Special Examinations, qualifying for candidature as Associate R.I.B.A., were held in London from the 19th to the 27th June. Of the 96 candidates examined 33 passed and 63 were relegated to their studies. The passed candidates were as follows:—

E. Adams (Oxford).	G. H. Mackenzie (London).
L. B. Budden (Hes-wall).	J. E. March (London).
J. J. Crowe (Harrogate).	A. E. Mayhew (London).
T. G. Ellis (London).	W. W. Nimmo (London).
H. H. Fraser (London).	H. R. Peerless (London).
H. V. Godfrey (London).	A. W. Phillips (Swansea).
D. H. Griffin (Liverpool).	C. V. Ponder (London).
F. Grissell (London).	J. C. Rogers (London).
F. M. Hammond (Bradford).	T. S. Rushworth (Harlow).
J. G. Hands (London).	T. Spencer (London).
B. R. Hebblethwaite (Beckenham).	R. V. Sturgeon (Manchester).
H. D. Hendry (Norbury).	T. S. Tait (Ealing).
J. Hill (London).	W. Voelkel (Newcastle-upon-Tyne).
G. A. Kay (Southsea).	J. Walker (London).
J. B. Lawson (London).	J. Wilks (South Shields).
L. Linton (Stockton-on-Tees).	H. McG. Wood (London).
F. Lorne (Woodford Green).	

The number of failures in each subject of the Final examination was as follows:—

A. Design	58
B. Construction:—	
(1) Foundations, Walls, etc.	35
(2) Iron and Steel	50
C. Hygiene	94
D. Properties and Uses of Building Materials	12
E. The Ordinary Practice of Architecture	27
F. Thesis	22

Housing, St. Austell.

St. Austell Urban Council have adopted a scheme for the provision of twenty-two dwellings, to cost £305 each.

The Summer School of Town Planning.

Among the lecturers who are to speak at the Summer School of Town Planning, which is to be held under the auspices of the University of London at the Hampstead Garden Suburb from August 4th to 16th, are Mr. Edwin L. Lutyens (who will read a paper on "The New Delhi"), Professor Adshead, and Mr. Raymond Unwin. The syllabus of the courses can be had on application to the secretary at the Institute, Hampstead Garden Suburb.

The Liverpool School of Architecture.

The July examination lists of the School of Architecture of Liverpool University include the names of Messrs. G. Davidson, R. S. Dixon, and F. O. Lawrence as having qualified for the degree of B.Arch., while certificates in architecture have been granted to the following: First Class, Messrs. H. C. Bradshaw, G. Davidson, R. S. Dixon, F. O. Lawrence, B. Newbould, A. R. S. Shibley, A. J. K. Todd, and A. Wilson (exempted from the R.I.B.A. Intermediate Examination). Second Class, O. Newbold, and D. P. Trench. The Holt Travelling Scholarship (£50) has been awarded to Mr. H. C. Bradshaw, and an additional Holt Travelling Scholarship (£35) to Mr. R. S. Dixon.

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(From Piranesi.)



THE PEACE PALACE AT THE HAGUE. L.-M. CORDONNIER, ARCHITECT.

(See criticism on next page.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

AUGUST 6, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 38 No. 969

The Peace Palace at The Hague.

THE building for the Peace Palace at The Hague is now practically completed, and it stands, robbed of the glamour of French draughtsmanship, as yet another melancholy monument of the futility of international competition. If this be the utmost effort which the idea of peace can bring forth from the architects of the world, it augurs ill for Peace or for Architecture; either the one no longer possesses any inspiring force, or the other is too feeble to respond. But this dismal outlook can hardly be the true one; the blame must rest chiefly on that curious fatality which dogs international competitions, and with safety can it be said that this building does not represent the final flower of architecture of to-day, and that it certainly bears no trace in its character to the idea which it is supposed to embody. The thought of peace can hardly have entered the architect's head when he designed it. At a glance one would take it for the town hall of a pretentious upstart city which was eager to assert its own aggressiveness by means of a warlike type of building; the spirit with which it is infused is feudal, the antithesis of peaceful; and one of the chief decorative motifs which has been selected to emphasise this is the turret pierced by loopholes.

It is sufficiently difficult to understand why any competitor could think of adopting this character, but it is incredible that this design should have been selected by a body of assessors whose names were, to say the least of it, reassuring. If every other design sent in had been disqualified owing to some flagrant breach of conditions, the competition should have been declared void, rather than that this design should have been built. There must, however, have been others conceived in a more peaceful spirit, and why one of them was not selected it is impossible to say.

Considering it as a pure design for a modern building in the air, apart from any definite object, it will sustain no serious scrutiny. It bears a close affinity to some of the feeble work which was done in this country in the early eighties of last century—it is conceived in a kind of bastard Gothic, of so lean a nature that it looks like a child neglected by its parents on account of its equivocal origin. The attempted blending of Gothic and Renaissance features, done unconsciously in the François Premier and Elizabethan periods, and self-consciously revived last century, is, one would have thought, by this time exploded as means of expressing modernity or originality in architecture; and one would least expect to find so transient and ephemeral a phase selected for the style of a building which is intended to symbolise the permanence of universal peace.

A closer look at the entrance lodge reveals the pleasant fusion of styles which have gone to the making of this piece of "original" architecture. The main wing has steeply pitched gables finished with Gothic stone copings; the smaller wing has a hipped roof descending to a Renaissance cornice in wood, the modillions of which, however, are enriched in a sort of Byzantine manner with incised bands and notches.

The stone window detail is in tolerable Romanesque, but one wooden dormer is frank Dutch Renaissance with the exception of the cyma, which is New Art in section, of a purity that must delight the devotees of this cult. Finally, the two principal chimney stacks are finished with a species of Gothic trefoil of a degraded jam-tart type. The materials are a dull heavy red brick, white stone, and a roof of mechanical thin blue slate.

The main building is largely compounded of whole features intimately reminiscent of old buildings, as, for example, the tiers of little dormers with which the roof is dotted, whose object in the old German house was to provide sufficient ventilation for the colossal monthly wash! The loop-holed turrets have already been mentioned—one wonders if a portcullis is not somewhere concealed over the main entrance; and what is one to say of the little blind gable and turret spike which feebly endeavour to centralise this entrance?

Though the features are patch-work, one might at least expect that the main mass of the building would hang together consistently; but this is not so. The front and back elevations are complete in themselves, but the most violent efforts have been necessary to connect them; ridges of three or four different heights, junctions between different levels contrived by the clumsy expedient of ending the higher with a blind gable into which the lower is haphazardly fitted, lofty slate pavilions, and an otiose turret, are all requisitioned to cover up fundamental defects of articulation. It is perhaps unfair to condemn the smaller turret as entirely otiose if it be considered to put an end to the repetition of the most deplorable feature of the exterior—the round-headed key-blocked windows, within a square frame, which enclose scratchy Tudor tracery. The general appearance of the building, except its front elevation, is a shapeless hulk, which must present to the garden architect a task almost impossible of successful achievement to bring into relation with a reposeful and dignified setting; a garden in the Anglo-Chinese manner is the only thing that would suit this grotesquerie.

In architecture there is this additional drawback to a bad work of art—that, being an immovable, it frequently destroys the value of other works of art in its neighbourhood. Before the advent of the Peace Palace, The Hague was a capital city, of small size, but completely consistent in scale and tone. Though the extensive Binnenhof is a picturesque group, the city in general is not picturesque, but rather is possessed of a simple and homely breadth, though with a true feeling of royal dignity about it; typical of this character are the Moritzhouse, the Royal Palace, and the House-in-the-Wood, most homely of Royal retreats and, as the home for the first Peace Conference, the precise opposite of this new upstart. It is a grievous thing that The Hague should have had the building imposed upon it, for no access of material prosperity that may result can compensate for the loss of true dignity which the outward appearance of this capital city has sustained. Regret is the more acute when one

imagines what glory on any city a Palace of Peace might confer, and how harmonious with the character of The Hague might have been a simple horizontal mass, seen, like the Moritzhouse, across a broad lagoon, framed in with trees and built, like the Royal Palace, in a single material of ivory-white colour (in place of the present glaring tricolor).

But an international competition in which no fewer than 217 architects took part has resulted otherwise.

L. P. A.

The Admiralty Arch Approach.

THE London County Council at their all-night sitting last Tuesday, before adjourning for the summer recess, agreed to contribute a third of the cost for carrying out the improvement scheme at Charing Cross in connection with the Admiralty Arch, and the Westminster Council having also consented to do the same, the scheme will now go forward. It has been a sorry business from the start, and though we readily admit that what has now been decided on will make a tidy finish to what is at present a shapeless muddle, we cannot look at the scheme with any degree of enthusiasm. It will be remembered that Sir Aston Webb's arch was built at the end of the Mall as part of the National Memorial to Queen Victoria, and, unfortunately, from the very beginning its relation to Charing Cross did not receive the attention it merited, with the result that when the arch was completed it could only be seen through a narrow passage from Charing Cross, being hidden away behind buildings. At the time of the Coronation a slight demolition on the north side was effected in order to make the place reasonably presentable, but this was merely a temporary expedient, and it soon became apparent that something much more drastic would have to be done. This more drastic scheme has, with the help of the Government, now been made feasible. Drummond's Bank on the south corner (a dull though inoffensive building) will remain, and the insurance buildings on the opposite corner will be pushed back so as to give an opening of 90 ft.; further, the curved treatment of Sir Aston Webb's arch will be continued on each side, thus forming a circular place. On paper this has a very pretty effect, but in so comparatively small an area we doubt whether it will be very stirring when executed. Building on a curve is no doubt capable of highly spectacular effects, as we saw formerly in the Quadrant, and as several fine examples at Bath—circles and bows of stone—go to prove: but it requires to be done on a large scale. The projected circular treatment in connection with the Admiralty Arch will be on a comparatively small scale; and we must not therefore expect too much from it.

The Lumsden Case.

HAVING made frequent references to the Lumsden case, we do not propose now to go further into much detail concerning it, but two facts call for notice. One is that judgment in the case was delivered last Friday in the Court of Appeal, and the other is that the Revenue Bill passed its second reading on July 29th and is now committed to Committee of the whole House of Commons. The Bill is likely to be passed, and as under it the restrictions imposed upon the building trade by the Lumsden judgment will be removed, it does not matter materially what the Court of Appeal may have decided in the case which was taken from the decision of Mr. Justice Horridge on a special case stated previously by the Referee. The Court of Appeal dismissed the appeal, the Master of the Rolls and Lord Justice Kennedy both agreeing that, having nothing else but to interpret the statute before them and not to criticise its terms, the judgment of the Referee must be upheld. Lord Justice Swinfen Eady, however, dissented. Into the intricacies of "assessable site value," "the like deductions" and

other problems which have already puzzled the most learned judges we cannot hope to enter now with a profit, but we would point out that the unfairness of the imposition which the Lumsden case imposed on builders is now generally recognised, the very fact that the Revenue Bill proposes to nullify it being evidence complete. To quote Lord Justice Swinfen Eady: "the case under appeal, the alleged increment in site value is really obtained in the following manner: The land, subject to a charge of £33 for tithe, was sold for £750; it was only 'expected to realise' £658, free from tithe; therefore there is a gain of the difference between £750 and £658, or £92, and the £92 is tithe, or £125 in all. This is claimed as increment in site value,' although the full site value has remained the same, and the whole increment entirely depends on such figure as the valuer may fix upon as a new ground value. If the statute requires such a valuation it must be made, but I cannot find any direction to make it so. . . . I can find no justification in the statute for the contention that wherever the price realised is greater than would have been reasonably expected the whole of the excess in price is to be deemed to be an increment in site value. . . ."

The Ideal Home Exhibition.

THE "Daily Mail," we notice, has commissioned Mr. Ralph Knott to design a workman's cottage for the Ideal Home Exhibition, which is to be held at Olympia in October next: this as the result of the assessors (Mr. Leonard Stokes, Mr. E. G. Dawber, and Mr. Raymond Unwin) having decided not to award the second and third prizes in our contemporary's design competition for a pair of cottages on account of insufficient merit. (Mr. C. M. Crickmer has been awarded the first premium of £50.) The cottage problem is one that continues to create great interest, and the "Daily Mail," in thus bringing the best talent to bear on the subject, is doing a public service.

The Aldwych Site.

WE are glad to learn that the London County Council have given Lord Grey the option of acquiring a large site on the "island" between Aldwych and the Strand. A company, known as the Dominion Site (Ltd.), has now been formed, with Lord Grey as chairman, and a number of Colonial statesmen as directors, to take up the option agreement. The eastern end of the "island" has already been sold to the Australian Commonwealth; and with the erection of the buildings contemplated by Lord Grey the site seems likely to become the representative London centre of our great Colonial possessions. We have always maintained that the new London County Hall should have been erected on the Aldwych site, for which purpose, in view of its central situation, it was almost ideal. As, however, advantage was not taken of that opportunity, we can only be thankful that the site is not to be let in fragments for the erection of unrelated buildings, as has so unfortunately been the case with Kingsway. Such a proceeding is bound to be destructive of all architectural scale and formality. The Aldwych site occupies a commanding position, and it would be nothing short of a catastrophe to allow it to be covered with a miscellaneous collection of structures. The buildings already erected are the Gaiety Theatre, the Marconi offices (formerly the Gaiety Hotel and Restaurant), and the building for the Victorian Government, and these are of a sufficiently imposing architectural character to warrant their position. The Australian Commonwealth building, now in course of erection at the opposite end of the site, is also a dignified design. It is to be hoped, therefore, that the Dominion Site Company will realise the responsibility of their undertaking and erect a building that will be worthy of its unique position.

SUBURBAN HOUSE COMPETITION.

EIGHTY-NINE designs were submitted in our competition for elevations of a pair of suburban houses based on the plans placed first in the former competition. After carefully considering these we have made the following awards:—

1st (£5 5s.), Mr. Leslie Wilkinson, A.R.I.B.A., London.

2nd (£3 3s.), Mr. Llewellyn E. Williams, A.R.I.B.A., London.

3rd (£2 2s.), Mr. David John Roberts, Birmingham.

In the first competition it was an essential feature that there should be a disposition of rooms quite distinct from that usually provided in suburban houses, and, similarly, in the second competition there was a desire to secure a design which rose above the ordinary level. In this respect, however, we have been somewhat disappointed, many competitors having submitted designs which were but a little improvement on the work we are accustomed to find in suburban areas. The usual gables and bays were adopted, and there

was a noticeable want of architectural scale. This is not a case where we may seek salvation in "the grand manner," but we certainly do consider that there is need for some studied attempt at architectural effect, rather than the miscellaneous display of rough-cast gables and small projecting bay windows.

Many of the drawings submitted were admirably executed, but we have not allowed this fact to outweigh the essential matter—design. Thus, the drawing by Mr. Wilkinson has obviously a rather lean, unsubstantial appearance, but the design itself is, we think, a very good one. In this case, as in many others, it would seem that the houses of the early nineteenth century had been carefully studied.

Mr. Wilkinson has followed the arrangement of the plan very closely. Like other competitors, he has put a pair of windows top and bottom at the front, getting light into the front-room cupboard from a window at the side. His design is proposed to be carried out in 9 in. brickwork covered with stucco, painted, the roof



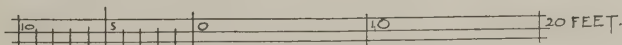
FRONT

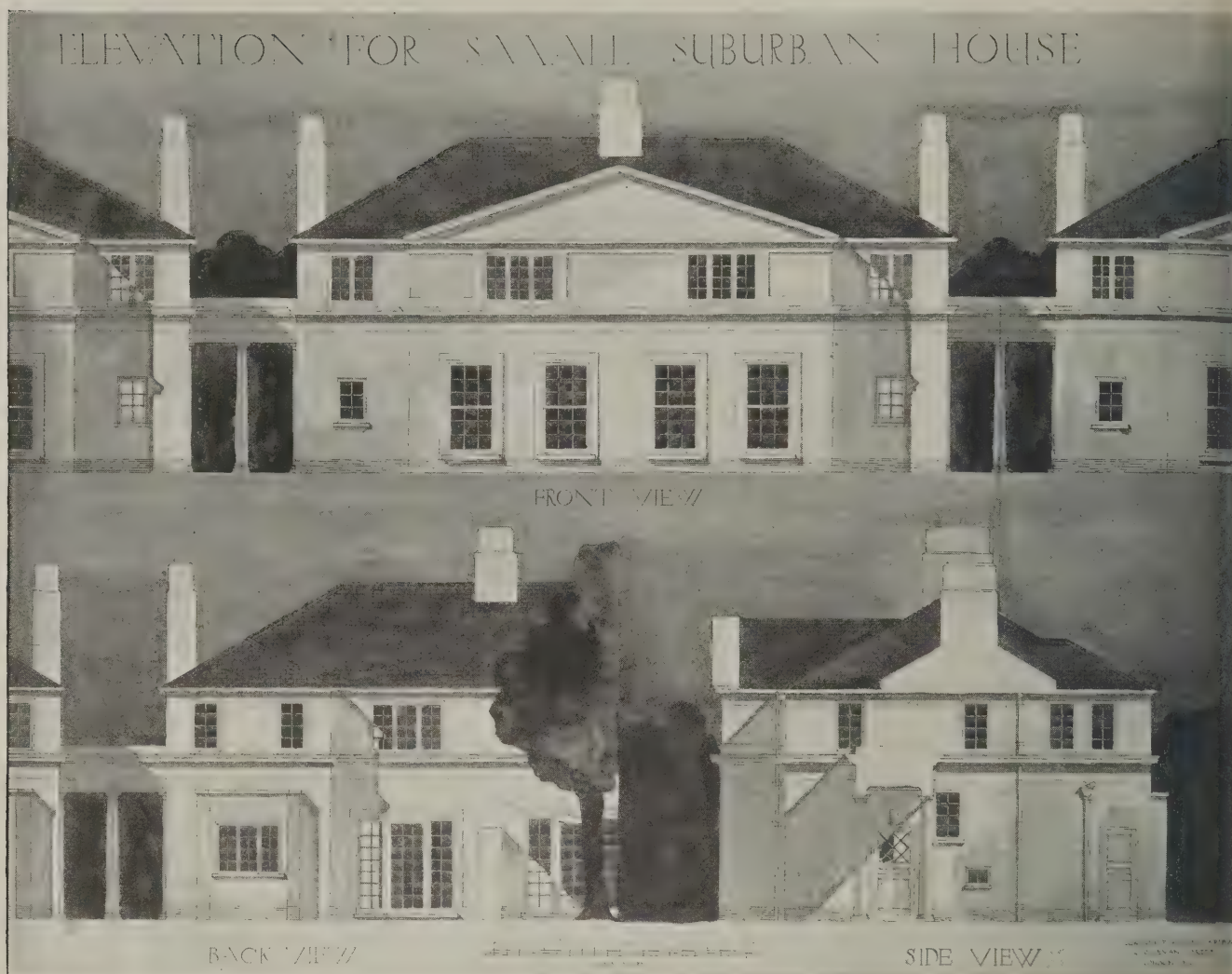
PAINTED · STUCCO · ON · 9" BRICKWORK · DARK · SLATE · ROOF ·



· BACK ·

· SIDE ·





DESIGN PLACED SECOND. BY LLEWELLYN E. WILLIAMS, A.R.I.B.A.

being laid with dark slates having black-tile hips. The effect would, we think, be very good, but we are a little doubtful about the dark slate roof; it would be likely to have rather too sombre an appearance, though we recognise that this could be considerably counteracted by a cheery colour on the stucco. Where the whole front is treated in this way the effect is very satisfactory, but where only pilasters are employed, with a filling of plain and perhaps rather inferior brick, the house has a shabby appearance which is not at all pleasant.

Mr. Williams has also adopted a stucco treatment, and, similarly, has gone to the houses of a century ago for his model. Whereas Mr. Wilkinson's windows look if anything a little bare, Mr. Williams has, we think, overemphasised his, more especially those on the front: the design, nevertheless, is a very good one.

A house of quite Georgian type has been adopted by Mr. Roberts. This is a sound piece of work, but it does not follow the plan so carefully as the first and second designs.

Of the two other designs which we reproduce, by Mr. Ap-Gruffydd and Mr. Swash respectively, we would merely say that they both exhibit considerable architectural merit, but are not equal to those premiated.

In the particulars of the competition it was stated that slight variations from the arrangement shown on the plans given would not disqualify. Some competitors, however, have taken a very extreme interpretation of this, and have arranged their elevations with scarcely any consideration to the lighting of the rooms.

Reviewing the competition as a whole, we think it

will be agreed that some very interesting designs have been evolved, based on a plan which is a distinct advance on the usual type; and we can only hope that the schemes which we have published will have some effect in producing a better standard of small house than is commonly provided in the suburbs at the present time.

A CRITICISM OF THE GARDEN CITY MOVEMENT.

TO the July issue of "The Town Planning Review" Mr. A. T. Edwards contributes a vigorous criticism of the garden city movement, from which the following extracts are taken:—

"Nobody can come to sane conclusions about architecture unless he first lays it down as a dogma that man is more important than his habitation. If anyone thinks otherwise he is an idolater. Thus, if it could be proved that none but detached houses of moderate size are really healthy, architects should be forbidden to design the noble terraces and many of the other large and monumental buildings that give to the community that possesses them a sense of so much dignity and power. . . . It must be confessed that although there are many cheap houses in garden suburbs, economy has been effected in wrong directions. In adopting a picturesque style, some of the worst and most insanitary features of mediæval building have

been incorporated; for instance, the upstairs storey is often put in the roof, and has low, sloping ceilings with dormer windows that admit very little light into the rooms. The external effect may have charms for the landscape painter, but such houses can hardly be considered a good example of twentieth-century building. Of what value is it to have an abundance of fresh air outside if our romanticists forbid us to breathe it! If it is contended that one cannot afford rooms of a more rational shape, the obvious answer is that it is possible to do without most of the dormers and the little gables and the sham half-timberings and the hundred-and-one other mediæval knicknacks with which these houses are provided.

"All these," concludes Mr. Edwards, "have been erected in the twentieth century but they are not modern. A great contempt of the past is expressed in this Garden City movement. Romanticism is a revolt against civilisation because of the great evils that appear to be inherent in it. It is assumed that if only we could put aside convention and artificiality all would be well. Slums grew up in the towns, therefore the towns are to be condemned. This impatient attitude expresses a tiredness of the spirit and a lack of historic sense."

CORRESPONDENCE.

R.I.B.A. Final Model Answers.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—In your issue of July 9th "Inquirer" made some notes upon one of my "Model Answers," published the previous week. I am indebted to him for calling attention to what might have been misleading to students. The diagrams referred to are not to scale and are intended to show in only a general manner the nature of the calculation to be made. I would refer students to Rivington, Vol. 4, where the various theories of stability are given and compared.

London, S.W.

C. P. WALGATE.

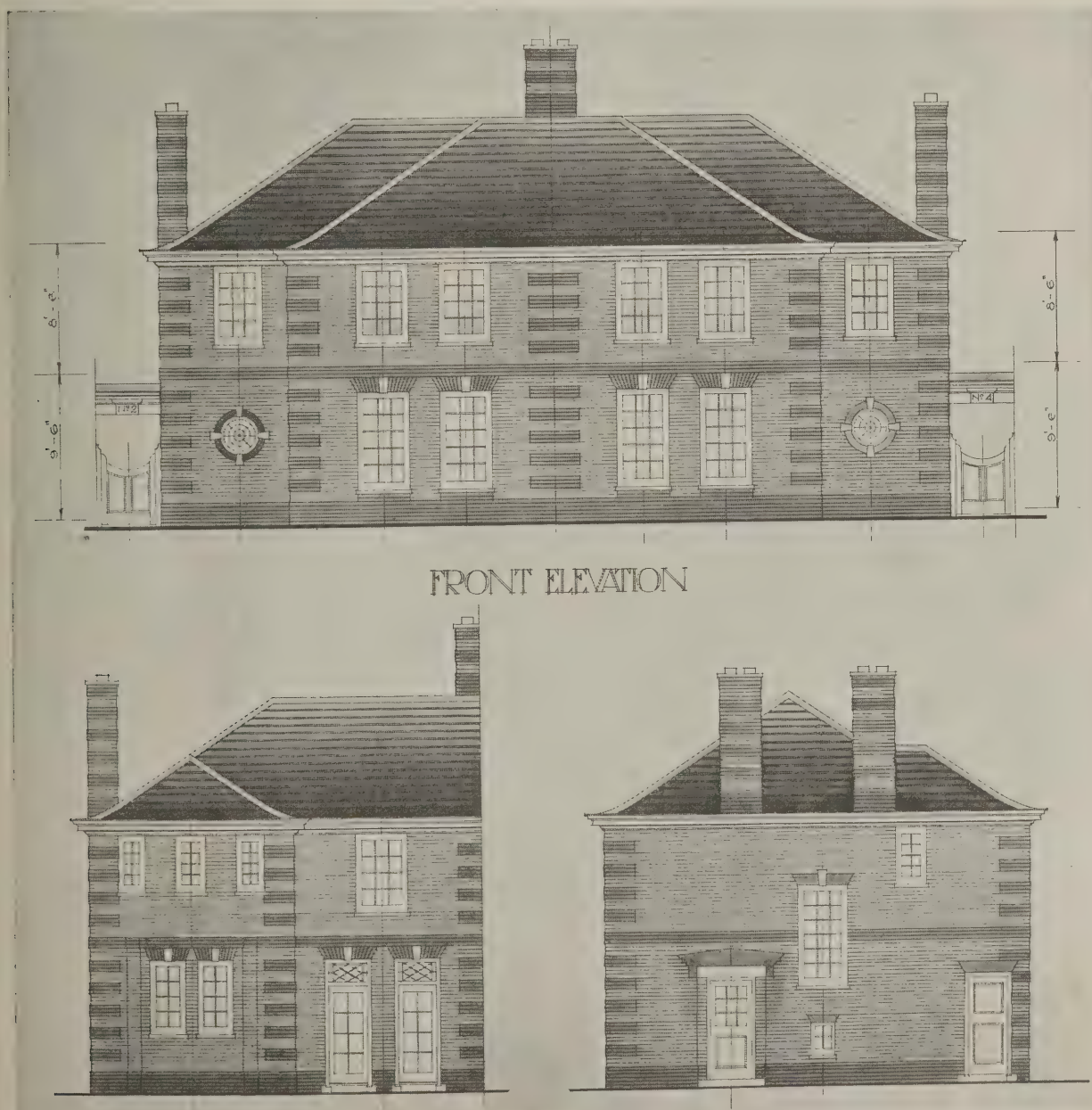
Architectural Tour in France.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—May I point out that the tour from Paris to Auteuil, Blois, Bourges, Chartres, etc., will start on August 11th instead of on August 4th as previously announced?

W. S. PURCHON.

The University, Sheffield.



SUBURBAN HOUSE COMPETITION: DESIGN PLACED THIRD. BY DAVID JOHN ROBERTS.

Supplement to THE ARCHITECTS' AND BUILDERS' JOURNAL, Wednesday, August 6th, 1913.





BRANCH LIBRARY, NEW YORK. CARRÈRE AND HASTINGS, ARCHITECTS.

OUR PLATES.

Branch Library, New York.

IN recent issues we have made a feature of giving good illustrations of the best work that is now being done in the United States, as we feel that the representation of such work should tend to raise the level of contemporary architecture in this country. A further example is now shown on the Centre Plate in this issue—a branch library in New York by Messrs. Carrère and Hastings. The dignified character of this design, eminently suited to its civic purposes, will be at once recognised. It is, indeed, a façade that reflects the culture and scholarship which we should always associate with a library, and though there is evident a suspicion of Italian work (which seems to have inspired the architects) it is infused with that essentially modern spirit which characterises American architecture, and enables it to achieve such distinction.

Peace Palace, The Hague.

A criticism of this important though disappointing building, reproduced as the frontispiece to this issue, will be found on page 127.

Aultmore, Nethybridge, Strathspey, N.B.

This house is being erected on a fine site at an elevation of about 1,000 ft. The drawing reproduced on page 135 shows the north or entrance front. On this side the ground rises up behind the house; on the south side it falls away rapidly, and the property is bounded by the Aultmore Burn, from which the house takes its name. There are wonderful views to the south of the Cairngorm Mountains and to the west across the Spey. The accommodation is indicated by the plan. Inside, the house is well and substantially finished, but without undue elaboration. The house being principally for summer residence, more attention is being paid to an interesting garden lay-out. Externally the walls are built of rubble, with free-stone dressings, and harled in between same. The roof is covered with local slates. Mr. C. H. B. Quennell, F.R.I.B.A., of Westminster, is the architect. The mason contractor is Mr. David Forsyth, of Elgin, the general contractors for the remainder of the work being Messrs. Macandrew and Co., of Aberdeen. The drawing illustrated is in this year's Royal Academy Exhibition.

Coldside Branch Library, Dundee.

The Coldside Branch Library is one of a series of five presented to Dundee by Mr. Andrew Carnegie. Mr. James Thomson, the City Engineer, is to be complimented on the admirable designs he has produced. The Coldside Library occupies a site of obtuse form at the corner of Strathmartine Road and Loons Road. The building is set squarely on this corner, the front being treated as an unbroken convex curve. There is a short return wall at either end, which is very successfully treated, as may be seen from the photograph reproduced on page 137. The work is in stone. Mr. Albert Hodge executed the carving.

Northern Conservative Club, Newcastle-on-Tyne.

A detail of the main entrance to this club, which has been erected from designs by Messrs. Cackett and Burns-Dick, F.F.R.I.B.A., is shown on page 139. The building occupies a site adjoining the old premises of the club, which had become out of date and unsuitable for the expanding membership. The club is now one of the most complete and best-equipped buildings of its kind in the provinces. It has a fine open position in Pilgrim Street, with Hood Street opposite. The shape of the site, however, is far from ideal, the only access being from Pilgrim Street, and the only light obtainable in a considerable depth being from front and back. This explains the unusual treatment of the lower storeys, which are so designed as to secure

the necessary service and fuel entrance without disfigurement to the front. On the ground floor at the front, on either side of the central vestibule, are a reception and writing room and a waiting room, while on the first floor is a reading-room, with ante-room adjoining, off which are the two appropriate balconies seen in the photograph.

Garden Pavilion to Country House at White Plains, New York.

We reproduce on pages 140 and 141 a working drawing of a garden pavilion to a house at White Plains, New York, erected from the designs of Messrs. Albro and Lindeberg. This is an admirable example of classical design as adapted on a small scale to American domestic work. Except for the walls, which are stucco, the structure is built of wood throughout, the rams' heads on the cornice being also of wood, carved from the architects' models. Internally the angles of the pavilion are fitted with mirrors. We are indebted to "Architecture" for our illustration.

UPKEEP OF THE LOUVRE AND VERSAILLES.

THE Louvre, the Palace of Versailles, and the Panthéon will all shortly be placed in the hands of workmen for alterations and repairs. The Louvre is threatened with dangers similar to, but not so grave as, those which are reported to threaten St. Paul's Cathedral, and architects, alarmed by the cracks which have appeared in the Ministry of Marine, on the Place de la Concorde, owing to the tunnelling and heavy traffic of the Metropolitan Railways in the neighbourhood, have succeeded in keeping the line now under construction near the Louvre over 50 ft. away from its foundations. As an additional safeguard they advocate the restoration of the original aspect of the Louvre which, as old designs and recent excavations show, was in part surrounded by a dry moat. This moat is now filled in and its excavation would, by acting as a kind of buffer, tend to weaken any vibration from the underground railway, and at the same time would lessen the humidity of the lower rooms of the Louvre, which, since the great floods of 1910, has increased every year.

A recent visit of the Historical Monuments Committee to the Palace of Versailles, says "The Times," has revealed the necessity of a number of important restorations and repairs in the old wing of the Palace, which faces on to the Cour des Princes. The old Louis XIII. walls were enveloped in new masonry, and time has dealt harshly with this combination. When the necessary work has been completed the old wing, now used as a store, will be added to the museum and turned into a picture gallery.

The funds at the disposal of the Commission amount to only £8,000 a year, and this sum is quite inadequate to carry out the necessary repairs at Versailles and the Trianon. The northern wing of the château is in a very neglected condition. Its pillars are crumbling under the weight they have to support, and the balustrade along the roof is falling to pieces. The decay is not confined to the Palace. The stonework of some of the fountains is crumbling away, and in the broad alleys of the park one-legged Dianas and headless Hermes frequently affront the eye. More serious than this damage to mediocre statuary are the attacks of parasitic vegetation upon the beautiful lead bas-reliefs of Girardon on the fountain of Diana. Experiments are to be made with a view to their preservation; and the Senate is to be asked to increase the annual grant for the upkeep of Versailles by £4,000.

There is every probability of this request being acceded to, in view of the object for which it is intended.

HERE AND THERE.

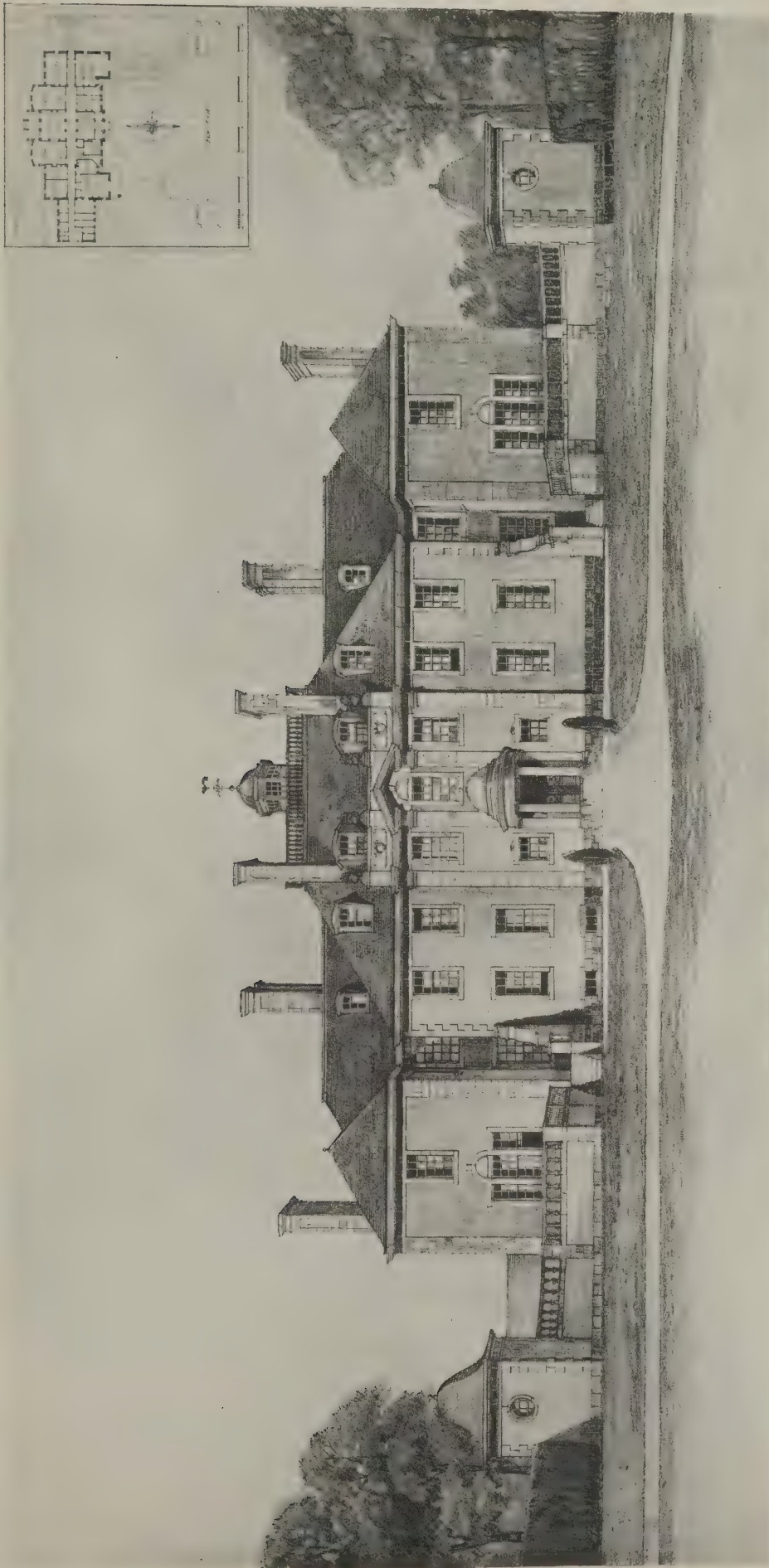
THAT comparisons are sometimes not at all odious, but very unprofitable, was borne in upon me when reading the late Professor Kerr's preface to Fergusson's "History of the Modern Styles of Architecture." The learned professor, evidently inspired by the dignity of his subject, fell to musing on the co-relation of poetry and architecture. Now all this profiteth but little, because, in reality, there can be no direct comparison between the two, just as it is futile to find a common basis for music and architecture. But there are many things unprofitable which yet interest us; so this shall be my excuse for juxtaposing the poet and the architect. Professor Kerr would have us notice how the characteristics of Milton's "Paradise Lost" are transfused into Wren's cathedral, and, carrying on his theme to a later century, goes to some pains in pointing out that the sonorous prose of Johnson finds its exact counterpart in the ponderous productions of Vanbrugh, while the elegant Addison finds his reflex in "the correct tameness" of Chambers. Setting aside this estimate of Chambers (which is not one that will be approved to-day, as Chambers, it is now agreed, was a very considerable figure) we may quote the professor *en bloc* as he proceeds: "The Adames tried to reproduce what they thought was purely Classic Art with the earnest faith with which Thomson believed he was reproducing Virgil's Georgics when he wrote 'The Seasons.' But here our parallel ends. The poets had exhausted every form of imitation and longed for 'fresh fields and pastures new,' and in the beginning of the nineteenth century wholly freed themselves from the chains their predecessors had prided themselves in wearing; but, just when the architects might have done the same, Stuart practically discovered and revealed to his countrymen the beauties of Greek Art. Homer and Sophocles had long been familiar to us: the Parthenon and the Temple on the Ilissus were new. The poets had had the distemper; the architects had still to pass through it; and for fifty long years the pillars of the Parthenon or the Ilissian Temple adorned churches and galls, museums and magazines, shop fronts and city gates—everything and everywhere. At last a reaction set in against this absurdity; not alas! towards freedom, but towards a bondage as deep, if not so degrading as that from which the enslaved minds of the public had just then emancipated." Thus we see that the professor had no liking either for the Greek or the Gothic Revival, and, apparently, shrank from any comparison between Tennyson and Gilbert Scott, or Shelley and Sedding. And how to-day shall we draw a comparison between architects and poets? Certainly, as regards the latter, we seem hard pressed to find them, even when a Laureateship is vacant, and I fear that if we were to go closer into the matter the whole comparison we were seeking to establish would utterly fail for want of appropriate examples: for the poets belong to an essentially modern school, while the architects wander in the shades of a distant past. There can be no comparison, therefore, between modern poetry and modern architecture. We may attempt to find an essential spirit common to both, but it will be a fruitless task, unless some clear-sighted genius can see a resemblance between "Gunga Din" and the British Museum extension, or the super-tramp poems of Mr. Davies and the accepted design for the Port of London Authority's new offices.

Almost everyone has a bee of some sort in his bonnet—some people, indeed, rejoice in quite a busy hive. I am no exception to the general rule, and find myself always ready to buzz when chimneys are concerned. This really is a matter where architects are

shockingly at fault. We see the results on every side: in fact, it may be counted a rare thing to find a building, civic or domestic, which preserves its chimneys in the neat condition shown on the architect's drawing. This is no obscure detail; on the contrary, it is a most prominent one. Who, then, is to blame, the architect, the client, or the builder? Does the first know his business in this particular, or is it all due to the whim of the second, or the engulfing weakness of the third for pots and tallboys? I am willing to admit there is a certain measure of blame so far as the last is concerned, but, after all is said, the chief responsibility lies with the architect. Some years ago, it will be remembered, after a lot of talk about smoke prevention, a practical test with a series of grates by different makers was conducted at the new building of the Local Government Board in Whitehall. Each chimney top was numbered and a record was taken of the quantity of smoke emitted. That was a very good test from the grate-maker's point of view, and I should like to see something of the kind done by or on behalf of architects. A number of different chimney flues might be built and finished with pots as desired by the architect, and considered by him as part of his scheme. Similar grates should be fixed in the flues, and an equal firing maintained. In this way, perhaps, some facts might be determined which architects could assimilate, and so save their skylines from the unsightly excrescences which are now added after a house has been completed.

It is often amusing to see other people as other people see them—that is to say, to be an outsider more or less disinterested. I find myself in this position when, in the current issue of "The Sanitary Record and Municipal Engineering," I come upon a whole-hearted attack on the builder who deigns to sit down in council with his fellow citizens. A short time ago this leader-writer, if the same he be, was lecturing the architect (as typified by Mr. Woodward) on the subject of by-laws, and now it is the builder's turn to be told what sort of a place he fills in the scheme of things. The indictment runs thus: "There is hardly a Surveyor to any council who has not at some time or other been face to face with a difficulty owing to a builder being a member of the Council. This personage naturally thinks that his plans are above criticism when submitted for approval, and when the work is going on that his mortar is above suspicion. He is generally convinced that he has a right to reap some advantage from his position, and if any objection is raised he takes it as a personal affront from the Surveyor. He also feels that he is as competent as the Surveyor, or more so, to give a professional opinion upon any part of the Surveyor's duties. It is a case of a little knowledge being a dangerous thing, and it has more than once been suggested that it would be better for the ratepayers and tend to more harmony on the Council if builders were precluded from taking office on that body. . . ." I am not going to jump into the fray with a whoop, as this is no affair of mine, but I think it may be pointed out that while the Surveyor rejoices in a capital letter the "personage" is given only a small "b"—by which little indication the whole *ex parte* pronouncement is made plain. Objections of the kind indicated need not be confined to the builder. Local councils are composed of all sorts and conditions of men, who all feel competent to offer an opinion on a point concerning their own particular interests: on which assumption it is easy to imagine the farrier criticising the quality of shoes served out to the municipal horses and the plumber finding fault with the village pump.

UBIQUE.



MODERN DOMESTIC ARCHITECTURE. HOUSES OF INTERMEDIATE SIZE. XVII.—“AULTMORE,” INVERNESS-SHIRE. C. H. B. QUENNELL, F.R.I.B.A., ARCHITECT.

(See page 133.)



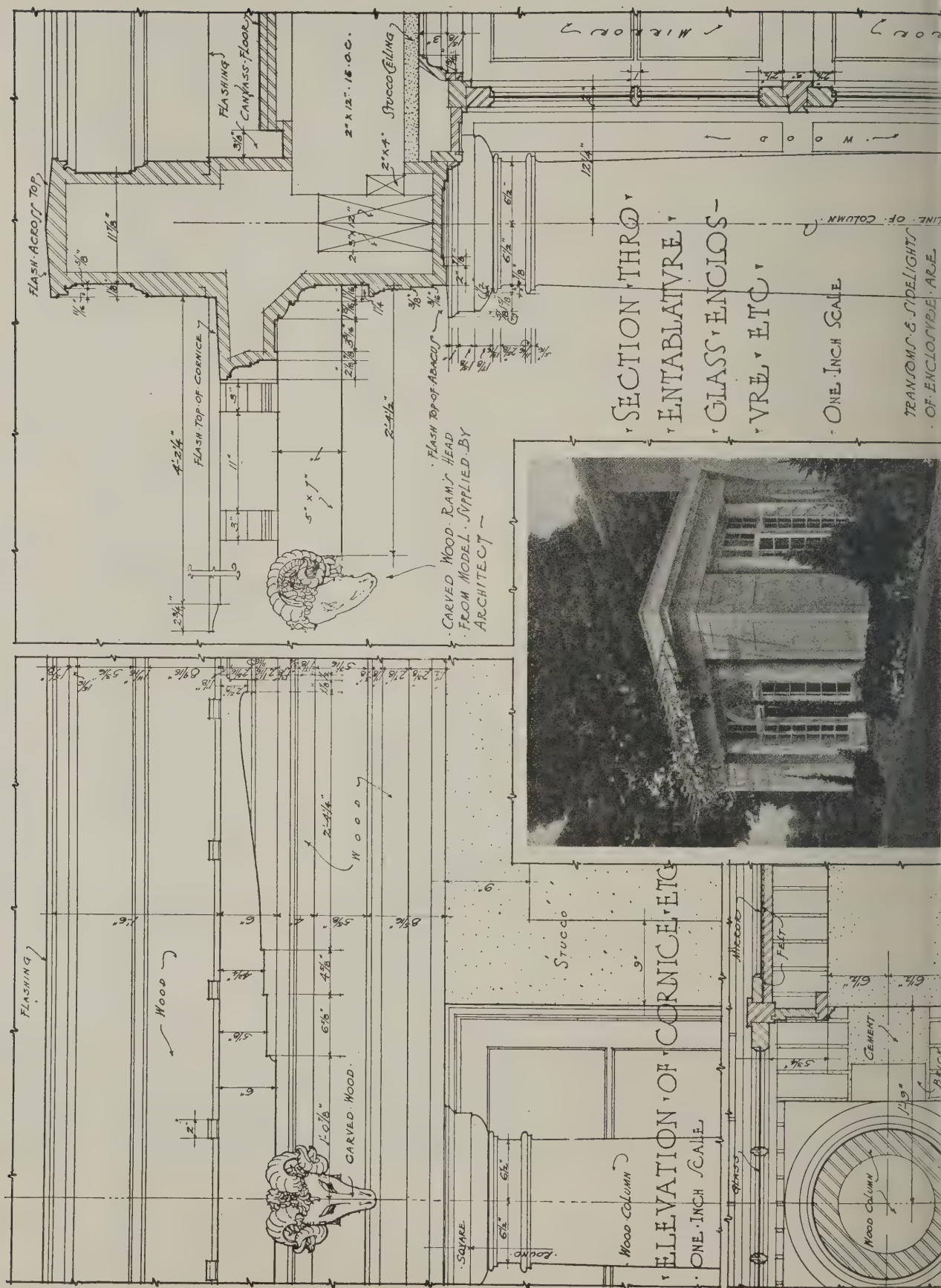
COLD SIDE BRANCH LIBRARY, DUNDEE: DETAIL OF RETURN END. JAMES THOMSON, CITY ARCHITECT.

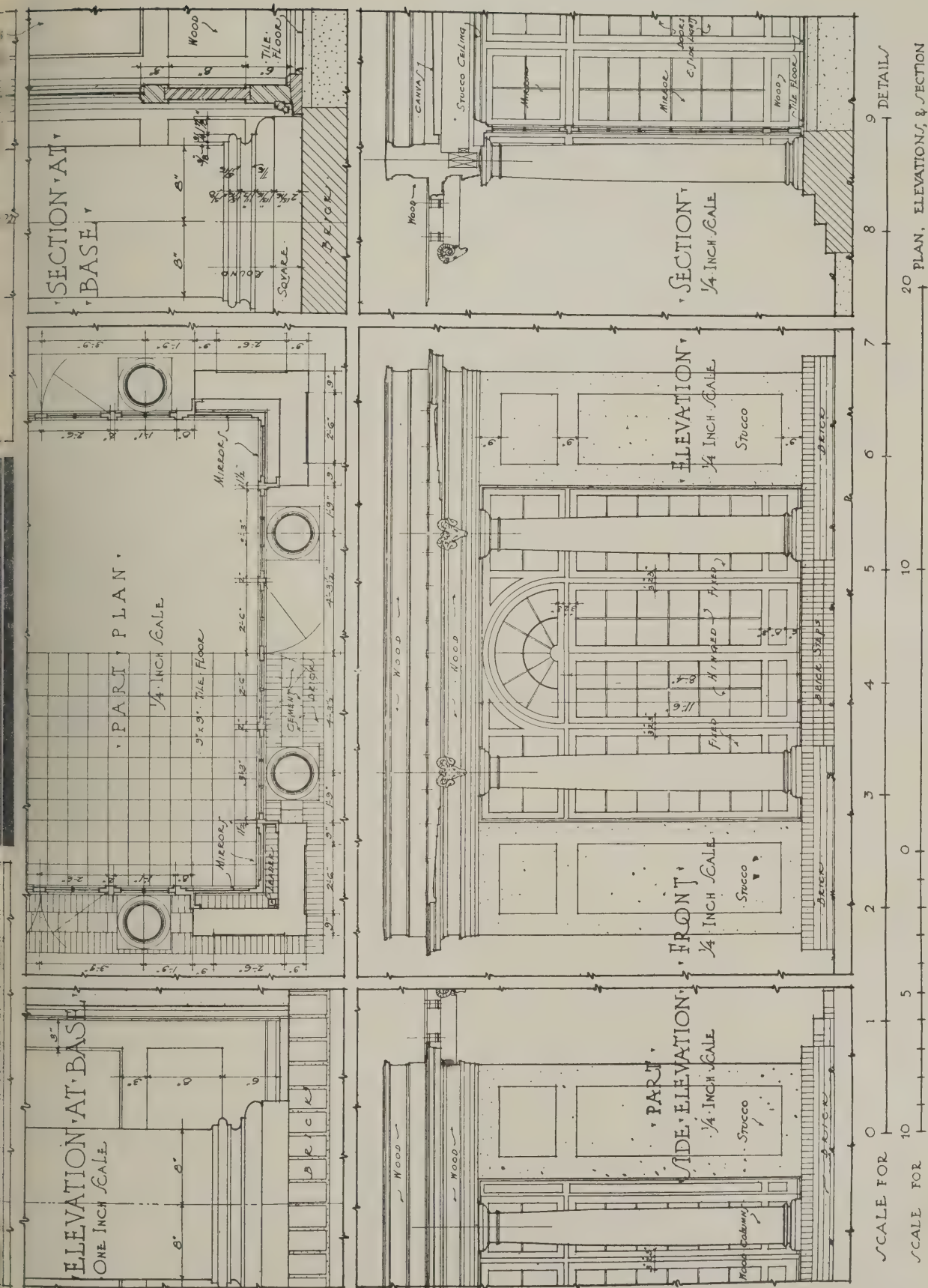
(See page 133.)



NORTHERN CONSERVATIVE AND UNIONIST CLUB, NEWCASTLE-UPON-TYNE: DETAIL OF ENTRANCE.
CACKETT AND BURNS-DICK, FF.R.I.B.A., ARCHITECTS.

(See page 133.)





WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS. XXXIV.—GARDEN PAVILION TO HOUSE AT WHITE PLAINS, NEW YORK.

ALBRO AND LINDBERG, ARCHITECTS.

(See page 133.)

THE NATIONAL FEDERATION OF BUILDING TRADES' EMPLOYERS.

HALF-YEARLY MEETING.

THE half-yearly meeting of the National Federation of Building Trades' Employers was held on Wednesday morning last, July 30th, at the Trocadero Restaurant, Piccadilly Circus, London. In the unavoidable absence of Mr. Cyril S. Cobb, chairman of the London County Council, who had promised to be present, the proceedings were opened by Mr. G. M. E. Pilditch, vice-chairman of the London County Council.

The President (Mr. F. Higgs) welcomed to the meeting Mr. G. F. Warren, of the South African Federation; Mr. H. Evans, of the Johannesburg Association; and Mr. S. J. Clarke, of Auckland, New Zealand. The South African representatives having acknowledged the greeting,

New Zealand Conciliation and Arbitration Acts.

Mr. S. J. Clarke gave a short exposition of the working of the Conciliation and Arbitration Acts in New Zealand. Their system, in the event of a strike, was that nine members might approach the district association and state their case. The masters' union was bound to respond, and matters were then discussed before a conciliation council consisting of three representatives of each side. The meeting was held in committee, the chairman, an official appointed by the Government, being known as the conciliation commissioner. Business was conducted in a perfectly informal manner. After the various points had been considered, those with respect to which no agreement was arrived at were sent to a superior court, which had all the powers of a supreme court—powers extraordinary and complete. Each side then stated its case. The men's union stated the concessions required and brought forward witnesses in support of their position. The representative of the employers was then entitled to cross-examine the witnesses, and to bring forward witnesses of his own. If the employers' and workmen's representatives were still unable to agree the final decision rested with the judge, who was a judge of the supreme court and sat in his judge's robes. His decision was known as an award of court.

The President then moved the adoption of the sixty-seventh half-yearly report, commenting upon various of the items contained therein. So far as his experience went, he said, trade was distinctly waking up, and they might reasonably look forward to a prosperous period, free from labour troubles, though it was impossible to predict what would happen with any degree of certainty. With regard to the question of an independent arbitrator in public contracts, negotiations had been proceeding with the Institution of Municipal and County Engineers with a view to the formation of an arbitration clause providing for the reference of disputes to an independent arbitrator, but so far without success. The negotiations had for the moment been dropped, but he hoped they would be resumed. The Administrative Committee now recommended its local branches to seek, by direct negotiations with public authorities, to obtain the insertion of an arbitration clause in local contracts no less favourable than that of the agreed form of contract. With regard to the necessity for sending in priced schedules with tenders in Army contracts, a deputation of the Lancashire and Cheshire branch, accompanied by the

National Secretary, was waiting on the Director of Army Contracts with a view to getting that unreasonable demand abolished.

The adoption of the report was seconded by Mr. Blackburn. In the ensuing discussion, Mr. Woods and Mr. Amphlet emphasised the necessity for more strenuous efforts in urging the advantages of affiliation to the National Federation. The latter speaker said that in the Midlands they were making strong endeavours, and hoped in the autumn to inaugurate a missionary campaign.

Priced Schedules with Tenders.

Mr. Moffat drew attention to a statement made in the Derby Press containing insinuations against the bonâ fides of the Midland Conciliation Board. In view of such scant courtesy it could not be wondered that members of the board refused to negotiate. With regard to the sending of priced schedules with tenders, this was actually a departure from the rules of the local associations. He had received a letter from the L. and N.W. Railway in which it was stated that tenders would not be considered without priced schedules. He thought the time was ripe for taking up the matter with the railway companies, the War Office, and the Office of Works. In Birmingham and district the probability was that five or six of the local authorities would toe the line to the Birmingham form of contract. The subject should be tackled comprehensively by all the associations.

A lengthy discussion ensued on the subject, many delegates speaking, including Mr. Davidson, who gave the instance of a case where tenders were sent in unaccompanied by schedules, and tenderers were made to forfeit their deposits as a result.

The President said that if bills of quantities were demanded and not sent the risk was run of losing deposits. With regard to schedules, the L.C.C. bound up tenders in a book comprising a number of sections, all of which had to be filled in if the requirements were to be fulfilled. The War Office sealed up the bills and would send them back unopened except in the case of the accepted tender. What they as contractors would prefer, of course, would be not to send in bills with the tender, but supply them subsequently in the event of it being accepted.

Mr. Blackburn suggested that corporations and others opening the quantities of unaccepted tenders should be made to pay so much per cent. to the contractor for his trouble.

The report was then adopted.

Finance Act Valuation.

The President then recapitulated the circumstances of the combined deputation which waited on Mr. Lloyd George on April 30th with regard to the Finance Act valuations. Mr. Holloway was appointed at the Chancellor's suggestion to confer with a committee that was formed and to draw up a bill stating the clauses which would meet with the views of the builders. The committee met some days ago and considered the Bill and Mr. Lloyd George's memorandum, and the National Council, which deliberated the previous day (Tuesday), had passed the following resolution, which was now put for confirmation by the Federation: "That this council recognises that the Revenue Bill just intro-

duced into Parliament, explained by the memorandum prepared by the Chancellor of the Exchequer, appears likely (provided its interpretation in practice accords with the principles expressed in the said memorandum) to go far to remove the difficulties experienced in the development and sale of land and buildings since the 1910 Finance Act came into operation. It leaves untouched, however, several important points which were brought to the Chancellor's notice at the interview on April 30th last, for which every opportunity should be seized towards effecting a remedy."

Mr. Smethurst having seconded the resolution,

Mr. Shepherd observed that when the Bill was first read in the House Mr. Pretyman said it would remedy most of the prominent objections to the original Act. He (the speaker) had had a private talk with Mr. Peto, and considered that the explanation which had been printed should be taken as bonâ-fide and genuine, and he had not the slightest doubt that the amended clauses would have the effect desired. Though the Bill did not achieve all they wanted, they should not, he thought, put any obstacles in the way of its passing during the present session.

The resolution was put and carried.

Draft Form of Sub-Contract.

The President introduced the subject of a proposed draft form of sub-contract. It was desired, he said, that the sub-contract should be fathered by the R.I.B.A., so that the specialist should know what terms the principal contractor required him to work to. The matter was temporarily suspended, as no communication had yet been received from the R.I.B.A. That body had approached the Federation with a view to the amendment of clauses of the form of contract respecting workmen's compensation. With regard to this he would put the following resolution: "That the recommendations of the council be deferred until January, and in the meantime referred to the Administrative Committee."

The motion was seconded by Mr. Moffat, and carried.

Mr. E. J. Brown said that the Institute of Builders had also been approached with regard to the amendment of the clauses in question, but serious consideration was required, and the matter could not be rushed through.

London Plasterers' Strike.

Mr. Stephen Easten then brought forward for consideration the situation created by the recent strike of plasterers in London. The circumstances, as set forth in a memorandum, are as follows:

(1) The N.A.O.P. suggested to the National Federation that although the London employers and operatives were left in the enjoyment of a local agreement between them, and did not come within the purview of the National Agreement, yet that, so soon as that local agreement expired, as it had done, London automatically came under the National Agreement.

(2) A meeting of officers of the Federation decided that as the parties in London had been left outside the purview of the National agreement by their own wish they could not be brought automatically under it. (3) Messrs. Wheeler and Tanner appealed to the National Joint

Committee *re* disputes occurring at Cambridge and Colchester in the shape of local sympathetic strikes at the instance of the London branch of the N.A.O.P. (4) The N.A.O.P. raised an objection to the hearing of these appeals until a conference of the chairman, vice-chairman, and secretaries of the National Joint Committee had been held to consider whether the appeals were in order. (5) The conference was held accordingly, and decided unanimously that these appeals were in order. They were subsequently heard, when the National Joint Committee decided that there was no justification for withdrawing the men on the jobs in question. (6) At the same time it was before the conference that Messrs. Walter Lawrence and Son desired to appeal in respect of a strike of a similar kind at Ipswich. (7) The conference decided that the appeal of Messrs. Lawrence and Son was not in order, because it was not competent for that firm to claim to be outside the purview of the agreement for the London dispute and inside it for an extension of that dispute to Ipswich. (8) Messrs. Lawrence objected to the decision on the ground that it would leave it open to them to contravene the local conditions of employment at Ipswich with impunity. The objection was considered by the National Joint Committee, which confirmed the decision of its officers. (9) Messrs. Lawrence further suggested that unless the Federation could help them at Ipswich it was useless to London employers. (10) The operative plasterers of London desired to be heard before the National Joint Committee of appeal in the Colchester and Cambridge cases, but the vice-chairman told them that they had no *locus* before that body and could not be heard.

Comment by the Federation.

The following observations are attached to the memorandum:

(1) So far the only action taken by the National Federation is that named in item two of the foregoing. (2) Except as stated in item one, the action taken is that of the National Joint Committee of Appeal, under its rules agreed to by the three parties to the National Agreement. (3) It follows that Messrs. Lawrence can go to the Federation for help, which may be granted, so long as there is no contravention of the obligations of the Federation under the National Agreement. (4) The like observation applies to the London operatives and the N.A.O.P. (5) The net result of the whole matter is that the parties to the National Agreement are at peace everywhere except in London, yet cannot confine the dispute to the London area, and are unable to deal effectively with the extensions. (6) The N.A.O.P. executive would be glad to confine the dispute to the London area, but under their powers of local autonomy the London operatives refuse to do that. (7) It is one of the ironies of the situation that the London association, which was largely responsible for the National Agreement, but itself stood outside, while allowing the National Federation to become bound by it, now finds that the National Federation, so fettered, is unable effectually to aid a London member in the Ipswich case. (8) Perhaps the Ipswich case is not of vital importance, but it must be remembered that London is also outside the National scheme of conciliation, so that it is evident that a serious situation might arise. (9) There seems to be only one real remedy, viz., that London should enter both national schemes of conciliation. That would not prevent her retaining her present local arrangements, subject to an

appeal lying from them in the event of no decision being arrived at, to the Centre and National Conciliation Boards.

The President then put the following resolution: "That this meeting greatly regrets that, owing to the circumstances, Mr. Lawrence's appeal could not be dealt with by the general body, and earnestly requests that London shall come into the National Agreement in respect of plasterers."

The resolution was seconded by Mr. Cooke, supported by Messrs. G. Macfarlane and Lindley, and carried.

Mr. E. J. Brown said he upheld the action of London. London was left out of the Conciliation Board Agreement because it was regarded as a cumbersome piece of business if any trouble occurred with the plasterers. They went straight to the men; it was irksome, perhaps, but they had beaten the plasterers. They had gained a great deal of kudos on the way in which their association carried the matter through, and the master plasterers had stuck to them and to their guns most loyally. He said candidly that if a member of the National Federation had trouble outside the twelve-mile radius and the Federation could not help him, he was justified in asking what was the good of the Federation.

Control of Trade Conditions.

The President then opened a discussion on the control of trade conditions, taking as a basis the three main factors given in Mr. A. G. White's thesis on the subject, viz.: (1) The control of labour; (2) the buying of materials; (3) the selling of the output. The first and third, he said were practically within their power, but the second was not. Mr. White had shown how consumers abroad combined to buy at wholesale rates. The practice was to establish an agreement between two sets of individuals, whereby a consumer would find it to his disadvantage to remain outside an organisation. The arrangement was already working to a certain extent in London, the Light Castings' Association having agreed to give builders preferential treatment. Mr. Amphlet, having mentioned that a similar arrangement with respect to bricks was now in operation in his district, then moved the following resolution: "That this meeting is glad to hear of the negotiations now in progress in London with respect to the control of trade conditions, and trusts that a satisfactory arrangement will be arrived at, and that the Administrative Committee be requested to draft a model agreement which shall be applicable in such cases to other parts of the country."

Mr. Hope seconded the resolution.

Mr. Woods said that builders' merchants and others were all making rings and combines. They in the Federation wanted a lead and a recommendation that they could all act in their own individual spheres.

Mr. Smethurst said that it seemed absolutely necessary that they should have a national scheme applicable to all members of the Federation, whereby trade should be limited to those who gave preferential treatment. It should be so comprehensive as to include everybody. When they got to ironmongery, terracotta, castings, etc., they would realise the necessity for a comprehensive scheme.

The President said that under the proposed agreement it was intended to include the few staple articles, the supply of which was fairly well under control.

The resolution was carried.

The Opening of Tenders.

The President then put the following resolution with respect to the opening of tenders: "That this Federation deprecates the growing practice of architects and other of receiving tenders without their being opened in the presence of parties tendering."

The motion was seconded by Mr. Blackburn and carried.

Among the minor items on the agenda for consideration was a letter from the University of Sheffield, intimating the beginning of special courses in building construction.

Mr. Amphlet proposed and Mr. Costain seconded a resolution approving of the action of Sheffield University, and referring the matter to the Administrative Committee.

The motion was adopted.

Mr. Moffat drew attention to a communication received from the Birmingham Industrial Co-operative Society (who were preparing a new list of builders to be invited to tender for work), asking whether assent would be given to a clause by which the contractor agreed not to employ any workman who was not a member of an accredited trade union. His association had sent round a circular to members to say that assent should not be given on any account. He mentioned this for the guidance of other associations.

Mr. McLaughlin said that the same thing had been done in Ireland, but as the employment of a non-union man meant the imposition of a fine of 5s. per hour no builders could be found to tender. The meeting then terminated.

THE ROOF OF WESTMINSTER HALL.

It appears, from a communication to "The Times," that the condition of the ancient roof of Westminster Hall is much more serious than could have been supposed from the information that had been previously supplied to the public, to save whom from unnecessary alarm, apparently, the real state of the roof was not revealed. A "Times" representative who has inspected the roof declares now that some of the wall posts which he saw were seriously affected both with dry-rot and worm. In one case the post was entirely hollowed out at the back from top to bottom and he put the whole length of his arm into the cavity. At the back of some of the wall posts a sort of fungus running in layers with the grain has been found. It is a white substance like paper, fairly tough and from one-sixteenth to one-eighth of an inch thick. The virtue has completely gone out of the wood, leaving it dry like tinder. It crumbled in the hand. The whole of the interior of one of the hammer beams has been eaten away. The representative put his arm in the cavity but could find no end to it. The ends of one of the principal rafters which he examined, both those resting on the hammer-beam and those resting on the main collar-beam, have decayed. In one case the whole interior of the piece has been eaten away, leaving only an exterior shell. In some cases the principal rafters are decayed right at the heart; in others small worm-eaten patches at the ends are the external evidence of large internal cavities. Some of the hammer-posts are also badly worm-eaten at the feet, and in one case half the original area of the wood is gone. The same defect was apparent in the collar-beams. Wherever the roof has been repaired in earlier times the new wood has been attacked by worm.

THE R.I.B.A. FINAL EXAMINATION: MODEL ANSWERS.

BY C. PERCIVAL WALGATE, A.R.C.A., Lond. (Architecture), A.R.I.B.A. Grissell Medallist, 1910, R.C.A. Travelling Scholar.

(Continued from page 45, No. 965.)

CONSTRUCTION. SECOND PAPER.

 $3\frac{1}{4}$ hours allowed.

Attempt not more than 4 questions in each part of the paper. Finished drawings are not required, but sketches should be clear. All calculations are to be shown.

PART I.

1. Explain the meaning of the terms "elastic limit" and "modulus of elasticity" as applied to any material. What are the values of mild steel?

Answer.—Elastic Limit is the greatest stress from which the material can completely recover. Steel 21 tons per sq. inch in tension or compression.

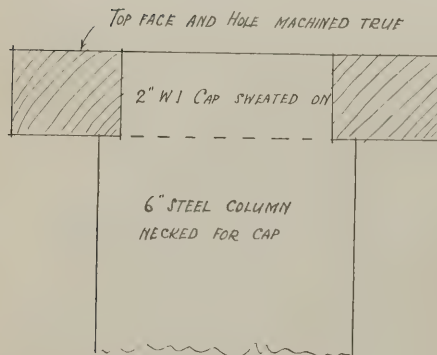
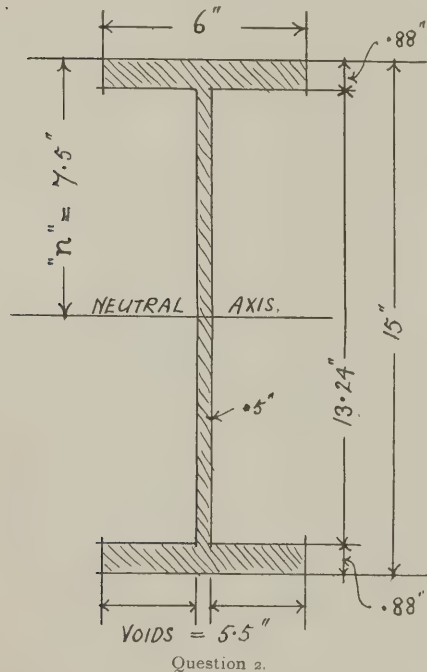
Modulus of Elasticity is the stress which would (theoretically) stretch the material to twice its length or compress it to zero.

Steel 13,000 tons per sq. inch in tension or compression.

2. (a) Calculate the greatest moment of inertia of a 15-inch by 6-inch steel joist, the thickness of the web being .5 inch and the average thickness of each flange .88 inch.

(b) From your result calculate what safe distributed load such a joist would carry over a span of 16 feet, the ends being freely supported.

Answer.—(See diagram.)



Question 4.

Greatest moment of inertia = $[(6 \times 15^3) - 5.5 \times 13.24^3] \div 12$.

Slide rule readings give

(a) 623.8 tons inches.

Safe load distributed, ends supported freely = $8 \times \text{moment of inertia} \div n \times \text{working stress} \div \text{span} =$

$$\frac{8 \times 623.8 \times 7.5}{7.5 \times 192}$$

Slide rule gives (b) 26 tons.

3. (a) Explain as simply as possible what is meant by the term "radius of gyration" in relation to the section of a stanchion.

(b) Express by a formula the relation that exists between the radius of gyration and the moment of inertia of a section.

(c) Explain shortly how the strength of a strut of given length may be determined by means of the radius of gyration.

Answer.—(a) The radius of gyration of a stanchion is the distance from the axis of rotation at which, if all the material were congregated, it would offer the same resistance to bending as it does in the section under consideration.

$$(b) \quad r = \sqrt{\frac{I}{A}}$$

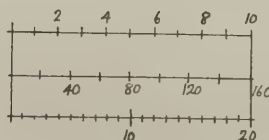
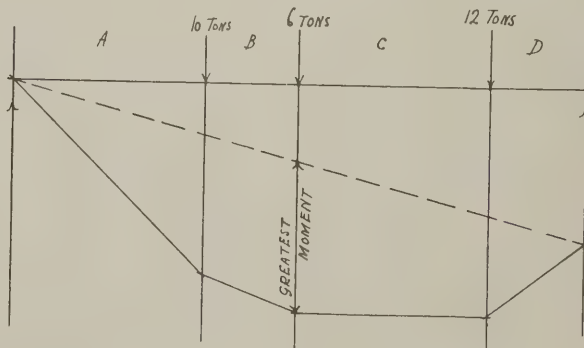
(c) The strength of a strut composed of perfectly rigid material would be given by unit strength \times area, but an allowance for non-rigidity or the tendency to bend is made proportioned directly to the length and inversely to the radius of gyration.

4. (a) Calculate the safe load that can be carried upon a 6-inch solid steel column of circular section 12 feet high, the fixing of the ends being taken as would occur in ordinary practice.

(b) Draw a section through the cap of such a column.

Answer.—(a) Safe load = $(\text{working stress} - 60 \frac{l}{r}) \text{ area}$

$$r \text{ for a 6\"/>$$



BEAM SCALE (FEET)

MOMENT SCALE

LOAD SCALE (TONS)

Question 5.

$$\begin{aligned} \text{Safe load} &= (17,000 \text{ lbs.} - 60 \frac{l}{r}) 28.274 \\ &= (17,000 - 5760) 28.274 \\ &= 31580 \text{ lbs.} = 141 \text{ tons} \end{aligned}$$

(b) (See diagram.)

5. A beam of 24-feet span carries a load of 10 tons 8 feet from one end, another load of 12 tons 4 feet from the other end, and a load of 6 tons at the centre.

Find graphically the greatest bending moment.

Answer.—(See diagram.)

PART II.

6. There is a terrace of old houses in a street. Each house has a frontage of 20 feet and a depth of 40 feet, and consists of a ground floor and three floors over, the ground floor being raised 1 inches above the street level and each storey being 11 feet to floor. It is proposed to pull down one of the centre houses and rebuild same.

Draw to a scale of 4 feet to an inch a section and elevation showing the shores you would erect, and figure the scantlings of the shores.

The party walls can be considered sufficiently good for re-use, but the buildings being old every precaution must be taken during the execution of the work.

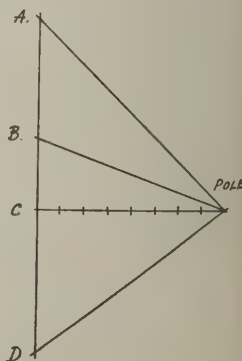
Answer.—(See diagram.)

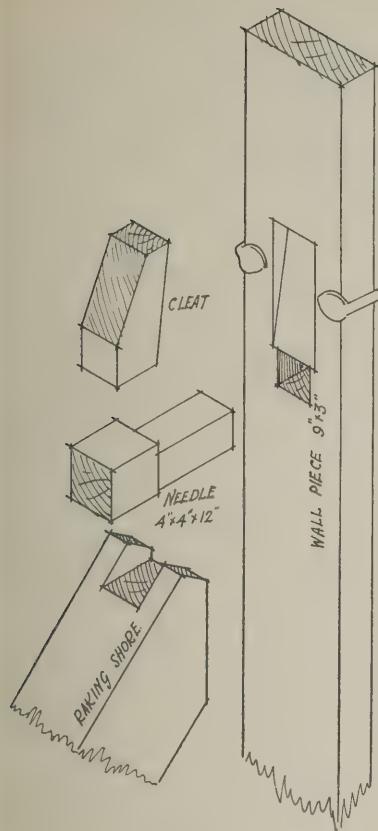
The part section shows raking shores to be erected at front and back of each party wall. If space is restricted they could be made with less spread than shown, but would be consequently less effective.

The elevation shows flying shores in two stages to be erected between the party walls about 12 feet apart. They must of necessity be placed out of the way of the new walls, but should so far as possible abut the internal walls and partitions of the adjoining houses.

7. Sketch to large scale the head of a raking shore and name the various parts.

LINE OF GREATEST B.M.
SCALE 100 TONS-Feet





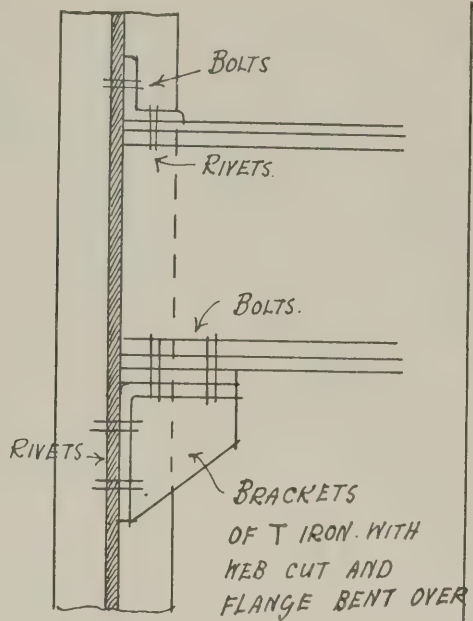
Question 7.

Calculate what load would be required to shear an ordinary size fir needle.

Answer.—(See diagram.)

600 lbs. \times .9 sq. inches = 5,400 lbs., $2\frac{1}{2}$ tons about.

8. The ground beneath the party wall of two high old buildings has settled and has caused the party wall in the basement to develop serious cracks and become dangerous, necessitating its being rebuilt for the full height of the basement. The upper portion of the party wall, above the basement level, is not affected so seriously as to warrant its



Question 9.

being rebuilt. There are no footings to the existing party wall.

Describe, with any sketches you may consider necessary, how you would proceed to carry out the work.

Answer.—Shore the wall at each end and brace adjoining windows. Strut up all floors to remove weight from the wall, distributing the weight on the ground by means of sills. As the case is of a serious nature, needle the walls immediately above the ground floor every 7 feet or so, carrying the posts down through holes in the floor and resting their feet on platforms beyond the intended excavation. Dig trial holes and determine the foundations necessary to safely bear the wall. Take down the wall in short lengths, putting in proper foundations and build-

ing tight up to the under side of the old wall with blue bricks in cement, taking great care that the whole wall, and not the faces only, is built up close.

9. A continuous stanchion is composed of a 15-inch by 6-inch steel joist, attached to which by a web connection is a compound girder composed of two 12-inch by 6-inch steel joists with one $\frac{1}{2}$ -inch plate on each flange.

Draw to a scale of 1 inch to the foot front and side elevations of the connection of the girder with the stanchion.

Answer.—(See diagram.)

The principle only of the connection can be shown, as the number and size of rivets, &c., are fixed by load to be carried.

10. What is the object of using stiffeners on the web of a plate girder and at what position should such stiffeners be placed?

Answer.—To prevent buckling of the web. Used over supports and under concentrated loads, and generally at joints of the web.

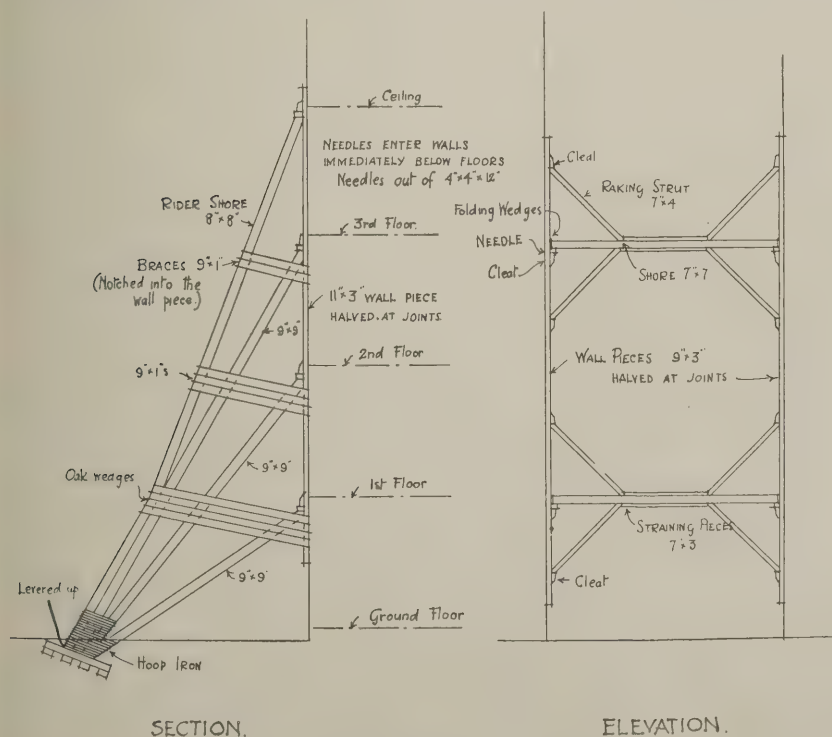
FIRE-RESISTING DOOR AND GLAZING TESTS.

The following announcements as to classification obtained under the universal standards of fire resistance are made by the British Fire Prevention Committee.

A hinged door by Chubb's Lock and Safe Co., Ltd., made to an opening of 20 ft. super., has been classified as affording "full protection," Class B, on a four-hour test to temperatures exceeding 1,800 degrees, followed by the application of water.

Electro-glazing by the Luxfer Prism Syndicate, Ltd., has been classified as affording "Partial Protection," Class A, on a $1\frac{1}{2}$ -hour test at temperatures exceeding 1,500 degrees Fahrenheit, followed by the application of water, for panels of 2 ft. by 2 ft., and the same classification has been accorded for panels of 3 ft. by 2 ft., i.e., which exceed the regulation size by 50 per cent.

The official reports in respect to the above-named tests will be issued this month.



Question 6.

THE L.C.C. DRAFT REGULATIONS FOR REINFORCED CONCRETE.

(Concluded from p. 120, No. 968.)

PART V.—WALLS.

106.—Where the dead loads and super-imposed loads of, in or upon a building are transmitted to the foundations by a series of reinforced concrete pillars, beams, arches, or other constructions designed and constructed in accordance with these regulations, any external enclosing walls of reinforced concrete between such pillars may be of any thickness not less than four inches provided that such enclosing walls are designed and constructed in accordance with these regulations to resist any loads and pressures they may have to carry.

107.—In any case where any wall or part of a wall is intended to support vertical loads or resist lateral pressures, it shall be of such thickness as may be necessary to keep the stresses within the limits prescribed by these rules for the construction of pillars, beams and other members.

108.—When portions of the external walls between the reinforced concrete pillars and beams are constructed of brickwork or stonework or plain concrete, such portions of walls shall be of a thickness not less than $8\frac{1}{2}$ inches for the topmost 20 feet of their height and not less than 13 inches for the remainder of their height below such topmost 20 feet.

When such portions are constructed of hollow concrete blocks—

(i) The cavity or cavities in any such block shall not exceed in horizontal sectional area in the aggregate one third of the horizontal sectional area of such block, nor shall any such cavity be of greater width than four inches.

(ii) The aggregate thickness of any such block, including the width of any cavity, shall not be less than eight and a-half inches, and the substance at the sides of any cavity in any such block shall be not less than three and a half inches in thickness unless the aggregate thickness of such block, including the width of any cavity, be not less than ten inches, when the substance on any side of any cavity in such block may be not less than three inches in thickness.

Provided that a less thickness shall be allowed in any case in which under the London Building Act, 1894, such less thickness is prescribed, and provided that in any case in which an external wall or portion of an external wall is not supported or carried or secured by the reinforced concrete skeleton framed construction within the limit of height and length prescribed by the First Schedule to the London Building Act, 1894, for the purpose of determining the thickness of walls, such external wall or portion of external wall shall be of a thickness not less than that prescribed by such schedule.

109.—All walls and facing materials shall be securely connected to the pillars, beams, floors and other contiguous parts of the reinforced concrete construction.

110.—Each panel in any external wall shall be designed to resist safely a horizontal pressure of at least thirty pounds per square foot assumed to be acting uniformly over the area of one panel from either side.

111.—The aggregate area of openings

in external walls constructed in accordance with these regulations shall not exceed in a wall of any storey above the ground storey two thirds of the whole area of such wall, and the aggregate width of such openings in such a wall shall not exceed three quarters of the whole length of such wall.

112.—Party walls and division walls constructed in reinforced concrete in accordance with these regulations shall be of such thickness as may be necessary to comply therewith, but in no part shall such walls be of less thickness than 8 inches.

113.—Provided that any such party wall between a building constructed in reinforced concrete and a building of the warehouse class constructed in accordance with the Rules of the Act of 1894, or as a steel-framed building, shall not be in any part less than 13 inches in thickness.

114.—All brickwork, stonework and plain concrete shall be executed in Portland cement mortar. The mortar shall be in accordance with the Council's by-laws from time to time in operation.

115.—The pressure on any brickwork supporting reinforced concrete work shall not exceed the following [tons per square foot]:—Blue brick in cement mortar, 12; hard brick (including London stock) in cement mortar, 8; ordinary brick in cement mortar, 5.

Such brickwork shall not have a height without proper lateral supports of more than six times its least thickness, but any such brickwork with proper supports may have a height between such lateral supports not more than twelve times the least thickness of such brickwork. Such thickness shall in no case be less than thirteen and a half inches.

PART VI.—FOUNDATIONS.

116.—The pressure of foundations on the natural ground shall not exceed the following [tons per square foot].

Natural bed of soft clay or wet or loose sand, 1; natural bed of ordinary clay or conglutinated sand, 2; natural bed of compact gravel, London blue clay or chalk, 4.

117.—The pressure on plain concrete in foundations shall not exceed twelve tons per square foot. The plain concrete shall be in cement and its quality shall be at least equal to that required by the Council's by-laws from time to time in operation.

PART VII.—PROTECTION.

118.—The cover shall be measured from the outer surface of the concrete to the outer surface of the metal reinforcement.

119.—The cover of any vertical bar in a pillar shall not be less than $1\frac{1}{2}$ inches and not less than the diameter of such vertical bar.

120.—The cover of any longitudinal bar in a beam shall not be less than one inch and not less than the diameter of such longitudinal bar.

121.—The cover of tensile, compressive, shear or any other reinforcement in slabs shall not be less than one half inch, and not less than the diameter of the bar to be covered.

122.—The cover of any reinforcement in other members shall not be less than one inch and not less than the diameter of the bar to be covered.

PART VIII.—MATERIALS AND TESTING. *Cement.*

123.—All cement used shall be Portland cement of slow setting quality and shall be in accordance with the British Standard Specification from time to time in operation.

124.—The quantity of cement shall be determined by weight and ninety pounds shall be deemed to be equivalent of one cubic foot.

Sand.

125.—The sand shall be clean and gritty and composed of hard siliceous grains. It shall be free from clay or animal, vegetable or bituminous matter.

126.—All sand shall pass through a mesh three-sixteenths of an inch square measured in the clear.

127.—The sand shall be separated from the coarse material before the materials are measured.

Coarse Material.

128.—The term "coarse material" means all the ingredients of the concrete except the cement and the sand.

129.—The coarse material shall consist of clean Thames or pit-ballast or grave hard stone, such as granite, basalt, trap rock, or other hard and equally suitable material.

130.—The following materials shall not be used with the sand or coarse material in the composition of the concrete under these regulations—

(a) Coal residues, including clinkers, cinders, ashes, coke breeze, pan breeze, slag and other similar material.

(b) Blast furnace slag, copper slag, forge breeze, dross and other similar material.

(c) Sulphates, including plaster of Paris, and other similar material.

(d) Limestones, magnesian limestone, marbles and other calcium carbonates.

131.—Unless quite clean all ballast or gravel shall be thoroughly washed.

132.—The coarse material shall be of such a size as will pass through a mesh three-quarters of an inch square measured in the clear and be retained on a mesh three-sixteenths of an inch square measured in the clear.

133.—The coarse material shall be varied in size as much as possible between the limits of size allowed for the work but subject to the provisions of the regulation numbered 121 it shall not be larger than such as can pass between the bars forming the reinforcement or between the reinforcement and the centering.

134.—The coarse material if of a porous nature shall be thoroughly wetted before being mixed with the other materials.

135.—The volume of water shall be in excess of what would be required to fill completely the interstices and voids of the coarse material.

136.—The volume of the sand shall not be more than twice the volume of the cement.

137.—The volume of coarse material shall not be more than twice the volume of sand.

Concrete.

138.—The concrete shall be composed of cement, sand and coarse material in one of the following or intermediate proportions and the ultimate compressive

resistance shall not be less than that specified for the proportion adopted:—

Proportion by Volume.		Ultimate compressive resistance in pounds per square inch.		Purpose.
Cement.	Coarse material.	28 days after mixing.	or, 90 days after mixing.	
1	2	4	1,800	Beams, pillars, etc.
1	1½	3	2,100	Do. do.
1	1	2	2,700	Pillars.

139.—For determining the resistance of concrete, tests shall be made on cubes of not less than four inches each way, or cylinders of not less than six inches each way.

140.—The conditions accompanying the preparation, setting, maturing and actual testing of the cube or other test piece shall as far as possible conform to the conditions that would obtain in the actual execution of the reinforced work.

141.—The ultimate compressive resistance of concrete of materials mixed in intermediate proportions may be estimated from the following equation—

$$u = 900 + \frac{5400}{V} \text{ where}$$

u = ultimate compressive resistance at 28 days, in pounds per square inch.

V = Volume of the sand plus the volume of the coarse material, per unit volume of cement.

142.—All three materials shall be thoroughly mixed dry, and then thoroughly mixed again, after wetting subject to the requirements of the regulation numbered 134.

143.—Salt water shall not be used for the concrete.

144.—The concrete shall be placed in its final position before initial set has taken place.

In the case of beams, pillars and walls the thickness of the layers of loose concrete shall not exceed three inches before ramming.

As soon as possible after mixing, the concrete shall be properly rammed into the moulds in such a manner and under such conditions as will secure a compact mass, without voids and of the greatest possible density for the proportions used.

Steel.

144.—All metal reinforcements shall be of steel which shall comply with the British Standard Specification for structural steel for bridges and general building construction from time to time in operation.

145.—All metal for reinforcement shall be cleaned of all scale dust and loose rust, immediately before depositing the concrete.

146.—End welding shall not be employed in any tensile reinforcement.

147.—The builder or other person directing the work to be executed shall, for the purpose of due supervision of the construction of the building, furnish the district surveyor with reasonable proof as to the quality of materials to be used in such construction, and shall make any test which shall be reasonably necessary.

TESTS AND TESTING.

148.—If at any time during the construction or within two months after the completion of the reinforced concrete construction it is found necessary to test any

part of such construction by reason of any sign of weakness or faulty work appearing in the construction, the builder or other person causing or directing the work to be executed shall make such tests, and, if the tests show the work to be faulty, it shall be reconstructed and reinstated in accordance with these regulations.

The measured deflection of beams fixed at the ends and uniformly loaded and subject to the permissible working stress shall not exceed 1/300th of the span when the span is 20 times the effective depth, and shall be in proportion for other ratios of span to depth, and for other conditions of end fixing and loading.

149.—The superimposed test load on any floor, roof or other structure shall be not more than one and a half times the superimposed load for which such floor, roof or other structure has been designed. The superimposed test load on any beam, slab or other similar member which has been exposed to frost during the first week of hardening shall be not less than one and a half times the superimposed load for which such beam, slab or other member has been designed.

150.—Loading tests shall not be made until the expiry of ninety days from the date of laying the concrete.

PART IX. CENTERING.

151.—For the purpose of these regulations the term "Centering" shall include all forms, moulds, sheetings, shuttering, planks, poles, posts, shores, struts and strutting, ties, uprights, waling, and all other temporary supports to the concrete during the process of setting.

152.—The centering shall be of such dimensions and so constructed as to remain rigid during the laying, tamping and setting of the concrete.

153.—The vertical strutting shall be maintained continuous through the lower storeys to the foundations or to other floors or beams which are sufficiently set to afford the required support without injury to the construction.

154.—All centering shall be removed without shock or vibration.

155.—Before the centering under any beam or floor slab is removed the pillars below such beam or floor slab shall be partially stripped so that the pillars may be examined on all sides.

PART X. WORKMANSHIP.

156.—All reinforcement shall be placed and maintained in the position shown on the drawings.

157.—The concreting in any member shall be carried out as continuously as possible.

158.—Where work has to be recommenced on a surface which has hardened, such surface shall be well hacked, swept clean, thoroughly wetted, and covered with mortar composed of equal volumes of cement and sand.

159.—Concrete laid during dry weather shall be protected against too rapid drying. During the first week of hardening it shall be kept damp by means of wet sacking or other methods or by watering daily (Sundays and holidays included).

160.—Concrete shall not be laid when the temperature is below 39° Fahr., and shall be protected when necessary.

161.—Concrete or mortar which has been frozen shall not be used again unless it has been thoroughly thawed and broken up. It shall then be considered, measured

and gauged as inert material only, and shall be mixed with fresh cement.

162.—No cutting for piping or any other purpose shall be done which would reduce the strength of any part of the structure below what is required by these regulations.

163.—Wood or other combustible material shall not be embedded in the concrete.

Blocks of coke breeze or other equally incombustible material may be used solely for fixing purposes provided they do not reduce the structural stability, and also provided that the area of such blocks at any given cross section is not included in the calculated compression area of any beam, slab, pillar, or other constructional member.

164.—Wood or other combustible material may be placed on or over the surface of the concrete provided that any voids or hollow spaces between the combustible and incombustible material be filled up with materials of an incombustible nature.

PROVINCIAL POLICE ORPHANAGE, REDHILL.

The new central building of the Provincial Police Orphanage, Redhill, which was recently opened by Princess Alexander of Teck, connects the original house with the Victoria and Gurney wings, occupies a central position, and covers an area of more than 2,400 sq. ft. It consists of three floors and basement. The basement, which is completely lined with asphalt, contains the boiler-house and coal cellar, drying-room, and two storerooms. An independent domestic hot-water circulation has been put in, supplying the whole institution.

On the ground floor access from the grounds is obtained from both front and back of the building. A boys' workroom, 18 ft. by 20 ft., and two staffrooms occupy the south front of the building, while two staffrooms and a large lavatory occupy the back portion. The inner portion is reserved for dry and grocery stores. The whole of the passages and lavatories are paved with terrazzo and the rooms with wood block flooring. The staircase is of reinforced concrete construction, faced with terrazzo, and has an enamelled brick dado.

On the first floor are two large dormitories facing south (each 33 ft. by 18 ft.) for twenty-four children, matron's sitting-room and bedroom, maids' workroom, pantry, three bathrooms, and lavatories, cupboards, etc., and the second floor is similarly occupied. The staircase and lavatories are of fireproof construction and the whole of the interior is of steel construction, including the roof. All the wood floors are polished. Electric light has been laid on for the whole institution, energy being supplied by the Redhill Co.

Certain structural alterations have been made to the old building and most of the interior has been redecorated. The total cost of the works exceeds £5,000. The general contractor is Mr. George Martin, Redhill. The domestic hot-water installation is by Messrs. C. P. Kinnell and Co., Ltd., the furnishing by Messrs. Maple and Co., Ltd., the constructional steel work by Messrs. A. Dawney and Sons, Ltd., and the stoves by Messrs. Candy and Co., Ltd. The whole of the work has been designed and carried out under the supervision of Mr. J. Augustus Souttar, architect, of Bishopsgate, E.C.

LONDON MASTER BUILDERS' ASSOCIATION DINNER.

ON Tuesday, July 29th, a dinner was given in the Whitehall Rooms of the Hotel Metropole by the London Master Builders' Association for the purpose of meeting the members of the executive council of the National Federation of Building Trades' Employers. Mr. Walter Lawrence, jun., the President, occupied the chair, and among those present were Mr. F. Higgs, President of the National Federation; Mr. Ernest J. Brown, President of the Institute of Builders; Mr. Percy B. Tubbs, F.R.I.B.A., President of the Society of Architects; Mr. T. J. Carless, President of the Quantity Surveyors' Association; Mr. John Hooke, Master of the Worshipful Company of Carpenters; Mr. James Wright, Mr. William Shepherd, Mr. G. Bird Godson, Mr. T. F. Rider, Mr. Basil E. Peto, M.P., Mr. James Carmichael, Mr. Leonard Horner, Mr. A. W. Sinclair, Mr. F. G. Rice, Mr. S. Smethurst, Mr. F. L. Dove, Mr. G. Macfarlane, Mr. S. B. Depree (Secretary, L.M.B.A.), Mr. A. G. White (Secretary, National Federation), and many others.

The customary loyal toasts having been honoured,

Mr. T. F. Rider, proposing the toast of "The Houses of Parliament," made a graceful reference to the intimate association of both Mr. Peto and his father with the building trade and the House of Commons.

Mr. Basil E. Peto, M.P., in reply, said, as Mr. Rider had pointed out, his father preceded him in the House of Commons, having become a member in 1867. His friend, Mr. Carmichael, he continued, had just made the suggestion that if only one could lock up the Houses of Parliament and lose the key it would be doing a good work, and he seriously thought that that was the opinion of the country. In Parliament nowadays the legs were more exercised than the brain. Turning to legislation affecting the building trade, Mr. Peto said that on January 22nd last they had the positive assurance of the Chancellor of the Exchequer that there was nothing in his Budget proposals so far as the building trade was concerned. Seven days later the Parliamentary Secretary of the Treasury made a much more emphatic statement; he said that builders' profits could not be taxed. Yet they found that the Revenue Bill, now being discussed on the second reading, was entirely devoted to the amendment of the land legislation of 1909. Clause 2 of the Bill dealt with the Lumsden judgment, and he believed it to be quite satisfactory to the building trade. The clause was very abstrusely worded, but in plain language it meant that no increment duty could be charged on any part of a builder's profit where the building erected was twice the value of the site on which it was built. In conclusion, the speaker said he was always ready to advance the interests of the building industry in Parliament, and he had only to be commanded.

The President, proposing the toast of "The National Federation of Building Trades' Employers of Great Britain and Ireland," extended a hearty welcome to its representatives on behalf of the L.M.B.A. They had as their president, he said, Mr. F. Higgs, a man who had done much in the past in London to further the interests of the building trade. He had also filled the office of president of the L.M.B.A. and of the Institute of Builders with credit to himself and with advantage to both bodies. Having passed

through the three chairs there was only one more step to take, and that was to obtain a seat in Parliament. He did not think Mr. Peto would object to the assistance of one more gentleman in representing the building trade there, but he doubted whether they would find themselves on the same side of the House. The Federation and the Institute of Builders, he continued, were trying to bring about an agreement with the R.I.B.A. relative to the sub-contract. The building trade did not want a one-sided sub-contract, but something which would be mutually satisfactory. The Federation were also moving in the matter of arbitration in public contracts. He was pleased to say that the L.C.C. would accept an independent arbitrator. Many public bodies, however, frequently took the view that they were quite fair in all their decisions, yet they opposed the appointment of an independent arbitrator. The sooner they had an independent arbitrator in all building contracts the better. In the provinces they fared much better than London in this respect. Another matter with which the Federation were dealing was the opening of tenders in public. He saw no reason why contractors should not be present. The Federation were making really strong efforts to strengthen and raise the status of the building trade.

Mr. F. Higgs, in reply, said he was proud to be speaking for the National Federation. His institution was the embodiment of the federation idea. One of the Oxford professors had said that the two great moving ideas in life were the religious idea and the social idea—that was, of association and co-operation. It was in furtherance of that idea that the National Federation came into existence. They, of course, encountered difficulties. One builder would say to another, "Why don't you join your local association?" And the reply would be, "What good shall I get out of it?" That was a difficult question to answer. The time was coming when the inducement to belong to the association would not be merely intellectual, but of a more substantial character. A federation, however, was not built up in a day. When all were members of an association and all associations were federated to the National, their power would be more nearly complete, and the masters would then be able to say if men on strike went to another town that they would not employ them. Mr. Peto, he continued, had told them that the Revenue Bill would be a cure for the trouble in the building trade. He had read that Bill, but he would defy anybody with a simple mind to say what the meaning of that wretched legal jargon really was. If Mr. Peto could disestablish the Bill drafters he would be doing a great service. He could never understand why Acts of Parliament were written in such wretched English. One object, apparently, was to provide work for the lawyers. With regard to arbitration, they intended to press on until success was achieved. They were also impressing on public bodies that it was not right to demand bills of quantities with tenders. The idea, of course, was that builders would make a ring, and the prices in some instances were taken by officials for the purpose of comparison. This was unfair, and the Federation were trying to get it altered. They were also endeavouring to get further afield in organisation. So far as he could, Mr. White, who was a great organiser, did push forward the necessity for affiliation.

Mr. James Carmichael (in the absence of Sir H. H. Bartlett), proposing the toast of "The Architects and Surveyors," said he remembered being called upon unexpectedly on a former occasion to propose this toast, and he asked his neighbour what he could possibly say about it. It was advised to say that the architect was the man who drew the plans so that neither the clerk of works nor the builder's foreman could understand them, and the quantity surveyor the man who made out the accounts so that neither the client nor the architect could understand them; and he did, and judging by the reception of his remarks they contained an element of truth. In any case, they all agreed that architects and surveyors stood higher in public estimation to-day than ever before. He was not one of those who admired old buildings, for he was convinced that a good work was designed and carried out to-day as had ever been done in the past.

Mr. Percy B. Tubbs, F.R.I.B.A., replying for the architects, referred to the question of the sub-contractor, who, he said, caused more trouble to architects and builders than anything else, and he hoped that the efforts they were making for a more satisfactory arrangement would be attended with success. They should, he thought, all try to encourage better craftsmanship. If, for instance, a joiner set out his own work, and was allowed to fix it when complete, they would get far better results. The work at present was set out for the workmen, and they never saw it after it left the shop. Mr. Tubbs concluded with a reference to the growing Registration movement and to the scheme of ateliers recently started in London. These were doing good work, and the progress made by students was astonishing. They were hoping to open another atelier in London and also to make a beginning in the provinces.

Mr. T. J. Carless, replying for the Surveyors, said he had heard it said that the quantity surveyor was an unnecessary middle man. The answer was that it was impossible for a first-rate architect to make a first-rate quantity surveyor; they were two absolutely different types of men. They did feel, however, that builders appreciated quantity surveyors. Their work meant pounds, shillings, and pence to them, and when they employed a fully qualified quantity surveyor they could depend on getting the profit they expected on a particular job.

Mr. E. J. Hill proposed the toast of "Our Guests," to which

Mr. John Hooke, Master of the Carpenters' Company, replied, observing that the ancient guild which he had the honour of representing had been in existence nearly 700 years and possessed records of the building trade so far back as 1337. It was flourishing then, and had done its best to look after the trade long before district surveyors or the L.C.C. came into existence.

Mr. A. W. Sinclair then proposed the health of the chairman, Mr. Walter Lawrence, jun., who briefly replied, the toast being accompanied by musical honours.

Church Building Society.

At the monthly meeting of the Church Building Society at 7, Dean's Yard, Westminster, Mr. F. L. Pearson, F.R.I.B.A., was appointed a member of the society's Committee of Honorary Consulting Architects in the place of the late Mr. John Oldrid Scott.

MOTOR NOTES FOR BUILDERS AND CONTRACTORS.

EFFICIENT SERVICE—AND HOW TO OBTAIN IT.

[Specially Contributed.]

EVERY time the average express passenger locomotive has made its journey it is given a thorough inspection by trained experts. Wherever possible these inspections are made in the round house or engine yard, and any adjustments or repairs, however trivial, that may be required are attended to at once. Every freight locomotive is inspected in this way at the end of each 150 to 200 miles of travel. As many as five inspectors work on a locomotive at one time. Each of these inspectors is a specialist on one particular group of apparatus that goes to form the complex whole, and each is responsible for that group of parts to which he is assigned. This inspection costs money, but it is one of the best possible investments. Owing to the almost impossibility of serious derangements going unnoticed, the repair costs of engines kept in this manner are trivial. The locomotive is maintained in constant service, the minor adjustments (that go to prevent long and costly repairs later) taking but a few minutes, and the operating department always knows the exact condition of each unit of its rolling stock, so that actual depreciation may be written off, and it is positively assured against the embarrassment that would result from an unexpected failure of a locomotive on the road.

Motors and Locomotives.

Motor truck owners are not vitally interested in the cost of running locomotives, yet there is no field which better illustrates the principles which this department is intended to advocate. As surely as a stitch in time saves nine, timely and thorough inspection of commercial carriers, such as locomotives and motor trucks, saves nine times the time and expenses required by such inspection in making repairs that result from lack of proper care.

To return to the railway analogy, what railway company would employ inferior inspectors for this important duty? Nothing but the most thoroughly qualified men are entrusted with the task, and the cost is made a decidedly secondary consideration. The result is that of five railways the average distribution of labour expended in locomotive maintenance is as follows: Wiping and cleaning, washing and inspecting, 60 per cent.; clinkering and firing, 12 per cent.; watching, hostling, and calling, 12 per cent.; supplying, coaling, sanding, and turntable, 16 per cent.

These figures cover a period of eight months, in which no repair time whatever is counted.

These figures are not remote from truck application, as in actual observation it is noted that the same principle applies. This follows so naturally and logically that to discuss it seems like waste of time, but if any reader doubts that the inspection of motor trucks is a live issue, he has but to spend an afternoon in the repair shops to learn that fully eight-tenths of shop repairs, with the exception of the annual overhauling, are the result of aggravated disorders that could have been remedied at the outset with very little effort and the expenditure of a few moments' time. The remaining two-tenths of shop repairs are the result of

accident, overloading, overspeeding, or faulty construction.

Monthly Inspections.

Recognising that frequent and thorough inspection of trucks is indispensable to their efficiency, several prominent makers have made a practice of sending their own expert inspectors to make regular monthly circuits of owners of trucks of their makes, inspecting them and making such minor adjustments as can conveniently be arranged and sending full reports to both the owner and the manufacturing company. This service is free, and there is nothing compulsory connected with it; yet, strange to say, the inspectors find it difficult to secure convenient appointments, and the average owner begrudges every moment taken from the actual service of the truck.

As the inspector has necessarily a large territory to cover, it is not possible for him to visit each owner at the most opportune time, especially when the fact is considered that the great majority of owners are loth to lay the truck off for even as much as an hour at other times than on Saturday afternoons.

Almost invariably, if the findings of the inspector indicate that an hour's time spent in minor adjustments will prevent the development of a serious derangement, the owner will decline to permit the truck to lose an hour of active service, disregarding entirely the effects of neglect which will bring the truck to the garage—to the round house, if you please—for perhaps a week's lay-up while a repair of real seriousness is made.

Experience shows that not only is the truck kept on the road a greater portion of the time when regularly inspected and any faults corrected before serious results ensue, but the actual cost of maintenance is reduced. The result is good service for the owner, a good advertisement for the builder, and a great saving for the maker in having the co-operation of pleased customers, instead of continual and expensive bickerings with owners who are dissatisfied with their equipment because of their ignorance or neglect.

Inspection service is the link that binds the owner and the builder, the middle-ground which adjusts the interests of both parties, to lie in the same direction. Viewed from the builder's standpoint, the service of inspectors, responsible to his own organisation, means satisfied owners, trucks that can earn a reputation for living up to the claims of their builder, and the assurance of friendly and co-operative relations with his customers. To the owner inspection service means assurance that his truck is in good condition, a monthly report of the conditions and requisites of the vehicles and an accurate method of determining the actual value and expense of the car in his business. Monthly inspection service is an assurance to the owner that the factory is in co-operation with him and dispels the idea which is often prevalent that the factory is no longer interested when the last payment has been made. The lack of responsible and competent inspection means possible dissatisfaction on the part of the owner, unpleasant relations between the builder and the buyer, with resultant loss to each.

The whole success of motor trucks in general depends upon the efficiency they show in actual daily service. Without doubt, among the prime requisites in attaining the amount of service and the degree of economy that the truck should show when properly applied and maintained, no consideration is of more importance than daily maintenance.

The problem is not entirely one of factory service, however; no one thing can make a success of truck applications. The factory can do much to promote the effectiveness of the equipment by monthly inspection and timely advice to the owner of the truck, by repair service and by designs in which the element of daily care is taken into consideration; but the root of the whole matter must of necessity lie with the owner of the truck.

Some Important Considerations.

If the motor truck were an ordinary commodity, such as everyone is conversant with, the responsibility would lie entirely with the owner; but as the motor truck is a complicated piece of mechanism that represents a considerable investment the owner cannot be expected to shoulder the entire responsibility. Here the motor truck differs from the locomotive. Locomotives are purchased in large numbers and maintained by staffs of experts in the owners' organisation. Trucks, on the other hand, are bought in limited numbers, most frequently in ones or twos, and the owner has done quite a lot when he hires a competent driver and adjusts his business so that the truck is given a fair opportunity to employ its capabilities. It is therefore vital, especially where the owner has a limited number of trucks, that the factory render service such as the truck owner is unable to secure elsewhere and charge adequately for such service. This proposition, though simple in itself, involves a number of considerations that are more or less involved. Where is the supply of competent drivers to come from? In just what particulars is the driver to be responsible for the service of the truck? Where does the responsibility of the driver begin and that of the maker leave off? Where does the responsibility of the driver end and that of the owner begin? What shall the maker do? What shall the driver do? What shall the owner do? Who shall pay? These are questions that should occupy each owner of a truck, and the degree of care with which they are answered must determine the effectiveness of the truck and the satisfaction it gives to all parties concerned. This is quite generally recognised by the makers, but by themselves they are helpless.

An increase in the selling price increases the difficulty of sales, and until buyers are educated to look beneath the price mark when purchasing a truck such service cannot be rendered generally. By this is not meant that all trucks need be high-priced, for the additional expense of the whole organisation when divided among the number of trucks produced would not add greatly to the cost of any truck, those which are produced in quantities much less than those which are produced in fewer numbers.

The whole question hinges on the

owner, as most truck questions do, for it is he that must pay the bills, and it is primarily essential that he be brought to realise that a few extra pounds investment at the start means many pounds saved in the long run.

In substance, factory inspection service is none other than repair insurance. Who would take the track-walkers from the railroads, those men who daily inspect each inch of rail, tightening a bolt here, grinding a joint there, and tamping a tie there? Who would neglect the rails until a train was wrecked before repairing them, tying up traffic for days, instead of making a permanent provision for inspection in the daily routine of the schedule, thereby limiting complete repairs to the occasion of total depreciation of the rails, accidents, or other causes beyond control?

Yet, as was stated before, it is on this principle that far too many owners operate. The responsibility is not to be placed entirely on the shoulders of the owner, however, for, like the rest of us, he is the creature of circumstances, over which he has little control.

The responsibility must be shared by those who have had a more active part to play in the shaping of these circumstances—to wit, the truck builder, who in the past has not given as much thought to these considerations in the design of his output as he might have; the salesman, who in the past has failed in some instances to impress on the owner the extent of the latter's responsibility; and, last, and by no means least, the truck journals, which have not given as much attention to these matters in their mission of educating the owner as they might have done.

NEWS ITEMS.

Change of Address.

The Elbron Metallising Co. have now moved to new premises at 42, Berners Street, W., to which address all communications should be sent.

New Agency for American Company.

An agency of the Municipal Engineering and Contracting Co., of Chicago (manufacturers of the Austin improved cube mixer), has just been opened in this country by Mr. A. L. Underwood, at 3—5, Cheapside, E.C.

Town-planning Scheme for London.

At last week's meeting of the London County Council Mr. A. T. Taylor, chairman of the Building Acts Committee, stated that his committee had in view a very large scheme of town-planning for London. Negotiations were proceeding at the present time, and the committee hoped before very long to bring up a large and important scheme before the Council.

Site of the Old General Post Office.

At last week's meeting of the Corporation of London the Improvements and Finance Committee submitted a report on the proposed street widening of St. Martin's-le-Grand and Gresham Street at the site of the General Post Office East and of Cheapside at Sweeting's Corner. It was stated that the Post Office authorities had offered to sell the land required to widen St. Martin's-le-Grand to 80 ft., Gresham Street to 50 ft., and a further piece of land in Cheapside adjoining Sweeting's for £126,000. Subject to the London County Council contributing half

the cost, it was agreed to execute the widenings and to accept the offer of the Post Office.

Admiralty Laboratory at Crombie.

The Admiralty have just accepted a tender for the construction of a large laboratory, to be built on the high land at Crombie and used for purposes of chemical research in connection with the ordnance works there. The contract also embraces the construction of several magazines. Messrs. Mackay and Son, Edinburgh, have been selected for the work, the contract price being about £30,000.

Historical Estate for Sale.

The Ewell Castle estate, Surrey, containing the ruins of Nonsuch Palace, which was built by Henry VIII. and pulled down by the Duchess of Cleveland, is now for sale.

New Public Hall, Leicester.

A new public hall, which has been built in grounds adjoining the Victoria Park, Leicester, at a cost of about £15,000, was formally opened by the Mayor last week. With its hall holding 1,500, grand tier for 680, back gallery 520, and platform 400, the total accommodation is 3,100; or, including the promenades, 4,000. The architects, who have adopted a Renaissance style, are Messrs. Stockdale, Harrison, and Sons, and the builders Messrs. Haskard and Beck.

British Portland Cement Manufacturers, Ltd.

At the second ordinary general meeting of this company, which was held on July 22nd at Winchester House, Old Broad Street, Lord St. Davids, chairman of the company, presiding, the report accounts, as summarised in last week's journal, were received and adopted, and the directors retiring under the provision of the articles of association—namely, Captain the Hon. F. C. Stanley, D.S.O., Messrs. J. Basley-White, H. Brooks, J. F. Plaister, and Anthony White—were all re-elected.

British Ceresit Waterproofing.

We are asked to note that the British Ceresit Waterproofing Co. continue to receive convincing testimonials to the value of Ceresit, among the latest being one from the Island Green Brewery Co., Wrexham, who write: "We are very pleased to be able to say that the cement treated with 'Ceresit' has proved to be perfectly watertight, and this in spite of the fact that we had great difficulty in getting the walls sufficiently dry for the application of the cement. In our opinion 'Ceresit' is a most valuable material for rendering the walls of damp cellars dry, and in substantiation of that statement we may refer you to our repeat order of a few days ago."

School of Architecture, University College, London.

The following will be the staff of the above new school: Architecture—Professor F. M. Simpson (Director), Professor R. Elsey Smith, Mr. J. J. Burnet (special visitor for academic design class), Mr. Leonard Stokes, and Mr. Edward Warren (special visitors for evening design class), Mr. Leslie Wilkinson (Assistant Professor), and Mr. Arthur Stratton (Lecturer). Engineering—Mr. J. D. Cormack (professor) and Mr. E. Sprague (assistant). Painting and Sculpture—Mr. Frederick Brown (Slade Professor), Mr. H. Tonks (assistant professor), Mr. W. W. Russell (assistant), and Mr. Havard Thomas (Teacher of Sculpture). Archaeology—Dr. E. E. Gardner (Yates Pro-

fessor). Hygiene and Sanitation—Dr. H. R. Kenwood (professor), and Dr. Sherwood New (assistant and lecturer), together with the professors and lecturers in general subjects in the Faculty of Arts.

Public Works and Contractors' Exhibition.

A Public Works and Contractors' Exhibition is to be held at the Royal Agricultural Hall, Islington, in March next, is under the patronage, among others, the following societies and associations: Society of Architects, Association of Engineers in Charge, National Federation of Building Trades' Employers, Acetylene Welding Association. Full particulars can be obtained from the general managers, Messrs. Walter Cawood, Ltd. 104, High Holborn, London.

Probable Lock-out of Liverpool Bricklayers.

Despite the threat of the Liverpool master builders' associations to lock out the bricklayers in the city if the strike at the Adelphi Hotel is not immediately ended, there is little likelihood of the measure submitting. The strike occurred as the result of a demarcation dispute between the bricklayers and the plasterers employed on the hotel. The Master Builders' Association demanded that the men should return to work at once, but the bricklayers declined to do so until a settlement of the dispute was assured. At a mass meeting of bricklayers it was decided to let the employers carry out their threat. In the event of a lock-out 1,000 bricklayers and 2,000 labourers will be affected.

St. Paul's Cathedral Committee of Experts.

The expert committee which is engaged in examining the fabric of St. Paul's Cathedral and considering methods of strengthening the foundations is composed of the following: Mr. Horace Darwin, acting on behalf of Sir John Wolfe Barry, Mr. Mervyn Macartney and Mr. W. D. Caröe, architects; and Sir Francis Fox and Mr. R. C. H. Davison, engineers.

The "pineapples," ball, and cross of St. Paul's Cathedral, and the railings surrounding the parapet beneath, are now being regilded after thirty-eight years. The clerk of the works states that the upper portion of St. Paul's is in a remarkably fine state of preservation, with the exception of some corners of the cornice which have split away owing to the corroding of the iron beneath. Copper is now being substituted for the iron, and the stonework is being renovated.

COMPETITIONS.

Working-class Dwellings, Bradford.

Mr. Henry T. Hare, F.R.I.B.A., the assessor appointed by the President of the R.I.B.A. to adjudicate on the competitive plans and schemes for the laying out of the lands at Odsal, Bradford, proposed to be acquired for housing purposes, has now conferred with the Health Committee, the City Architect and the City Treasurer. The committee decided that the competition conditions shall require competitors to provide in their schemes for the provision of houses of the under-named capital values, exclusive of cost of land, roads and sewers: 200 houses at £165, 20 houses at £182, 100 houses at £243, 10 houses at £292.

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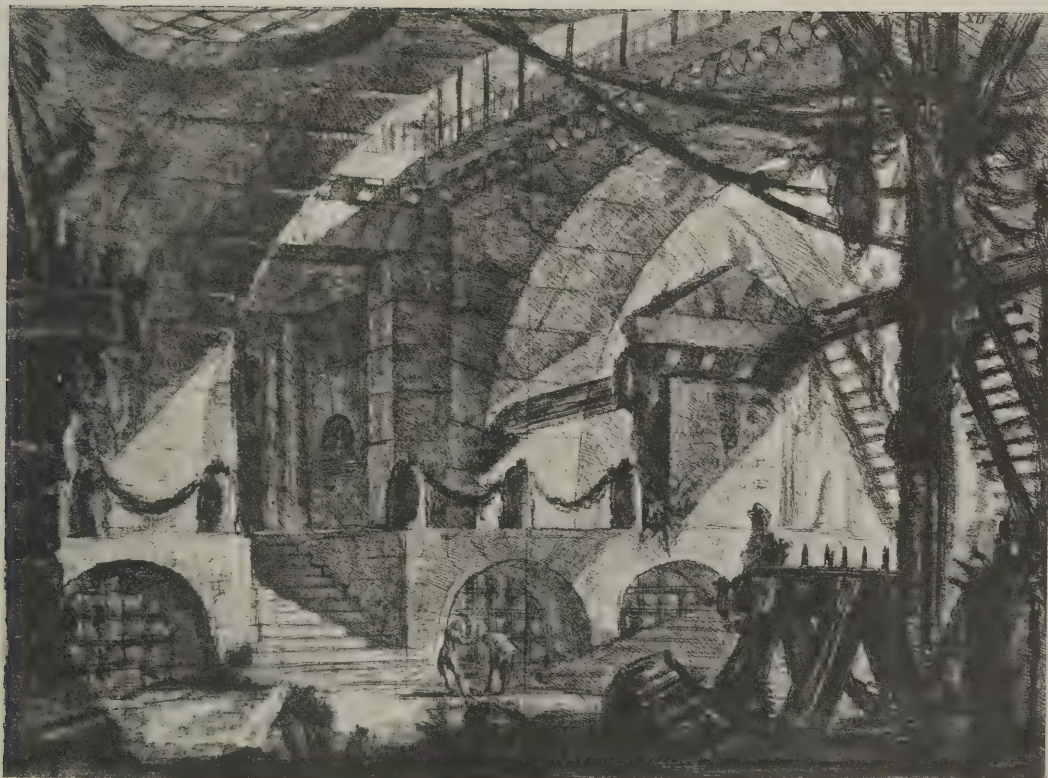
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(From Piranesi.)

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NEW NAVE TO HEXHAM ABBEY. TEMPLE MOORE, F.R.I.B.A., ARCHITECT.

(See page 159.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

AUGUST 13, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 38 No. 970.

The Monument and the Sculptor.

A MONUMENT to Captain Cook is to be placed near the Admiralty Arch, and it has been suggested that another should commemorate the exploits of Drake, while one to Viscount Wolseley is being actively canvassed. Surely this is a hopeful sign in a nation which does not love these things, or that loves them so little that it huddles together the few it already possesses, so that they can be seen at a glance. Trafalgar Square proves our ineptitude for certain aspects of civic design, its poor fountains and mediocre monuments making it one of the most distressing places in London. Here is a splendid site, with the National Gallery and St. Martin's Church for background and with the beautiful statue of Charles I. looking down Whitehall, spoilt by our non-recognition of Art as something vital. Waterloo Place is only a little better. Both are susceptible of vast improvement, at inconsiderable cost, but nothing is done. Even when the late tedious search for a site for the King Edward Memorial was ended, and Waterloo Place was finally selected, no thought was taken to make it a fine place. It was discovered that Trafalgar Square lacked a statue and that Napier of Magdala might be shifted there and the King's monument put in its place. The larger question of taking away the Crimean Memorial and the York pillar was never considered. Yet only in this way can a worthy site be made for the King's memorial. As it is, we shall probably have another equestrian statue like that of the Duke of Cambridge which cumbers Whitehall.

Committees seem to think that when they have collected money for a memorial their self-imposed task is at end, whereas if they only considered the matter thoroughly they would realise that the vital necessities are—an artist and a site. The fund for the Wolseley Monument has already reached a sum exceeding £2,000. The committee may have a site in St. Paul's, but they have not an artist, and they will probably be driven to the Royal Academy for advice; and they will get such advice as a body of men can give who consider painting to be the only art, and usurp for painters alone the title of artist. The Royal Academy is far beyond the searching spirit of the Renaissance, which posed for itself the question of the relative merits of painting and sculpture. It knows that painting is the only art. On this assumption it does as little for the sister arts as it can. True, it admits a few sculptors, who, once they are within the charmed circle, proceed to form a close corporation and distribute the prizes among themselves—the prizes being the London monuments. These monuments are not many, it is true, but the Royal Academy does not encourage their increase.

Why do not the sculptors who are in revolt against the Academy organise exhibitions as the painters do? It is high time for this if sculpture is not to languish. Architects themselves are beginning to discriminate, so that work of men like Henry Poole, Albert Hodge, and A. Broadbent can be seen on many buildings in London, adding a grace and interest to the Mistress Art. But the public have not yet learnt that sculpture

is a vital art. They have got rid of the dead classicism of the nineteenth century, and are attempting, not vainly, to join up with the tradition of the seventeenth century. Bernini is the high priest.

It is opportune here to consider the general question of sculpture in relation to the monument. It is the custom to consider a monument as a portrait figure, invariably cast in bronze. Now, to the writer it has always seemed that this is but half a monument, as it cannot stand without some kind of foundation. The usual procedure is for a sculptor to employ an architect to design a base for his figure. Judging from results, however, collaboration is unsatisfactory, and some other way must be found. The only reasonable course to adopt is for them to collaborate from the beginning.

Doubtless committees are largely responsible for the results we see. They want a portrait figure in bronze stuck up on a granite pedestal. Have they ever considered the possibility of a monument made of Portland stone? Perhaps they think that a life of a few centuries is too short for their creations, and fondly imagine that their bronzes and granites will last for ever. Surely not if art ever plays an equal part in man's activities. For certainly when that day arrives three-quarters of the bronze statues will be put in the melting-pot. As for granite, the sooner Londoners give up complaining of the lack of sunshine and try to ameliorate the conditions of their climate by putting precious white stone, which contrasts with our grey skies, instead of dead granite out of the frozen north, the better it will be for their city.

And now that we are considering this question of monuments, is it not deplorable that nothing adequate has been done to honour the memory of that mighty benefactor of the human race—the late Lord Lister? We have ever been ready to glorify the soldier, and the writer would not for one moment decry the noble gifts and high qualities which are enshrined in the art of War, but it is nevertheless a sad deficiency that we do not rise with equal enthusiasm to honour some great exemplar of the art of Peace. There can never be any question as to the beneficent work which Lord Lister accomplished: his magic discovery in the realm of surgery, which placed humanity superior to pain, will ever be recognised as perhaps the greatest good to humanity made possible by any single conception. The man, then, who did so great a work deserves to have a mighty memorial set up in the finest site in the metropolis, as fitting tribute to the glory of his achievement.

And when we come to undertake such a monument let us not go into the future with the same stupid gait of the past. When we consider the names of sculptors who fill out the page of English art history we may well wonder what has become of their work. Where is it? Where is the expression of their enthusiasm, of their burning hearts? But yesterday Alfred Stevens walked across the stage of life, his brain afire with ideas which were never allowed to be realised. It is a sad occupation examining his designs for things never executed. Are we better to-day? How have we used Gilbert?

H.

The Cheap Cottage Problem.

THE dearth of cheap cottages in rural districts is undoubtedly a most serious national problem at the present time. In recent years many attempts have been made to solve it, but with little success, except, perhaps, in the case of the experiment lately carried out by Messrs. Rowntree, at York (detail particulars of which, it will be remembered, were published in this Journal). Housing reformers, however, are very much on the alert, and practical attempts are almost constantly being made. The general idea is that if it were possible to build for £100 a cottage, perfectly comfortable and sanitary, containing three bedrooms, a good parlour-kitchen, and a scullery, the housing problem would be solved. There are two chief factors preventing the achievement of this object: (1) The present high cost of building materials, and (2) the restrictive character of the building regulations in operation throughout the country. These regulations are issued by the Local Government Board, and in ordinary circumstances prohibit the erection of cottages for the sum named above. It is obvious, therefore, that until these official regulations are considerably revised so as to allow of cheaper and different methods of building, there is little hope of solving the problem.

An experiment in cheap cottage building is at present being conducted by Mr. St. Loe Strachey at Guildford, under the ægis of the Rural Co-Partnership Housing and Land Council, with the object of showing that it is possible for a landlord who is willing not to reckon the cost of the land to build a satisfactory cottage of the type outlined above for £150. A landlord, it is claimed, could afford to let such a cottage for 2s. 6d. a week, the tenant paying the rates. The cottage in question is constructed of weather-boarding fitted to a timber frame, the interior being plastered. As it has been pointed out, this type of cottage would not be permitted by the by-laws in ordinary circumstances, so for practical purposes Mr. Strachey's experiment loses much of its value. Mr. Strachey, it may be mentioned, has offered to allow anybody to erect a cottage on his land at Guildford if it can be done for £100, and proves to be properly constructed and habitable, and to purchase it for the full sum plus £10 for a year's loss of interest on capital. This experiment, if it complies with the by-laws, will be watched with considerable interest; but until the building regulations are altered there seems to be small prospect of achieving the desired end.

The Trade in Old Houses.

SINCE the advent of the rich American, eager to acquire some fragment of ancient work and carry it off to his home in the States, quite a trade in old houses has sprung up. Such a trade of course is, in itself, no new thing, as we may see in a moment by taking stock of the bartering that has been going on in Italy for very many decades; but precedent gives it no warrant, and to us it is the more objectionable when it involves the despoiling of some ancient fabric which has formed an intimate part of our local or national history. It is but a short time ago that Tattershall Castle got into the hands of the dealer, and was only saved at the last moment by the intervention of Lord Curzon. And since then there have been several other instances—of a minor character, it is true, but none the less indicative of the traffic in old work which certain firms are ready to indulge in. We are reminded of these things by the protest made in their last report by the Society for the Protection of Ancient Buildings against the practice of stripping old houses of their fireplaces and other valuable fittings. The Committee consider it a most distressing sign to find that this practice is rapidly increasing. The real blame, they think, attaches to those who are willing to pay sums of money, often very large sums, for the fine parts of old houses in order to incorporate

these in the inappropriate surroundings of their own homes. "It is not too strong to say," the report declares, "that only the uneducated, only those who have no instinct for beauty, can find it possible to encourage the spoliation of existing and often very ancient art by having one house stripped of its possessions for the very doubtful benefit of another." Instances given of historic houses which have been subjected to the kind of treatment at which the Committee protest include the Reindeer Inn, Banbury the panelling, ceiling, and stone mullioned window of which have been removed by a purchaser; the Treaty House, Uxbridge, where also the panelling is said to have been sold; and the Nelson Room of the Star Hotel, Great Yarmouth, for the panelling and ceiling of which the owner is said to have given the option of purchase to a dealer for a very large sum. The Castle House, Petersfield, a fine house dating from Tudor days, is also stated to have been bought so that the valuable fittings it contains, panelling and chimney-pieces, may be sold.

The St. George's Hospital Site.

WHAT exactly is to be done with the site of St. George's Hospital when that institution, merged with Westminster Hospital, moves to a suburban district of London, is not yet made clear. A statement was first made that yet another mammoth hotel was to occupy the site, but this has since been refuted, and we have not seen any other to take its place. Meanwhile the Earl of Shaftesbury comes forward with the suggestion that the much-talked-of National Theatre might here be built. The site is, indeed, a splendid one, and for a National Theatre we could not wish for a more appropriate setting. But where is the money to come from wherewith to build it? The noble Earl recognises that it is not likely the State would come forward with a substantial subsidy for opera and the drama, and the only alternative is by way of voluntary endowment. In regard to this, however, we cannot rise to any degree of optimism. But whatever the building set up on this exceptional site, let us hope that the architect will take due stock of his surroundings. Decimus Burton's screen and his great arch are close at hand to indicate that a monumental treatment is the one only that will be successful here.

Experiments with Building Timbers.

SO much importance attaches to the question of defects in timber, particularly as regards dry rot, that we shall follow with interest the research work which is now being carried out at the School of Forestry at Cambridge. The Royal Institute of British Architects, we notice, have been in communication with the School concerning various points in regard to the use of timbers for carpentry and joinery upon which architects and builders need reliable information; the most important of these points relating to the possibility of treating timbers so as to preserve them from fungal and insect attacks, without injury to their lasting qualities and without rendering them less workable. These suggestions have been carefully considered and efforts are now being made to organise an experiment on a semi-commercial scale which will furnish information that will be of substantial service. Experiments with railway sleepers and paving blocks are now in progress. The building timber specimens are to be treated in various ways, some by being placed in a rotting pit, others under conditions approximating to those found in ordinary buildings. The resistance to boring insects is to be tested, and other points to be investigated relate to the effect of the treatment upon the working qualities and appearance of the wood and upon tools, the readiness of the wood to take paint, varnish, polish, and so forth.

JOHN RENNIE'S BRIDGES.

WATERLOO BRIDGE is admittedly the finest bridge across the Thames, and, as with many another notable structure, different opinions have been held as to who was actually responsible for its design.

Mr. Leonard Stokes, for example, has attributed the design to Ralph Dodd, obviously confusing him with George Dodd, his son, "who is stated to have been the projector and designer of Waterloo Bridge," according to the notice of Mr. Robert Hunt, F.R.S., who tersely proceeds: "This error arises from the fact of his being the resident engineer under John Rennie, to whose genius this work is entirely due." Ralph Dodd, it may be mentioned at once, was an engineer simply concerned with canals, water-supply, and mechanical engineering. When he wrote to the "Gentleman's Magazine" taking exception to the assertion that Rennie was the architect of the bridge, and claiming the honour for his family, he mentioned that the approved plan and design could be inspected. Not doubting his good faith, we may feel inquisitive about this view, and perhaps wonder what in his opinion constituted the essentials of design. He was not an architect himself, and he might have been a poor judge; perhaps he was not quite impartial; possibly, too, the design might have been materially altered, though not in particulars settled by Act of Parliament. No mention is made of attention to Ralph Dodd's statement, and Rennie continues to be regarded as the designer. Here, then, is matter for diligent inquiry.

The conclusion that Rennie does not appear to have had any particular knowledge of the subject on his appointment to carry out Waterloo Bridge does not tally with facts. His college training ended in 1783, and in 1784, when he was only in his twenty-third year, he was occupied in superintending the building of his first bridge about two miles west of Edinburgh. Soon after 1791, at the age of thirty, he carried out the Lancaster Canal, with its aqueduct over the Lune, besides very many other celebrated English works;

and between 1799 and 1803 he constructed the stone bridge over the Tweed at Kelso, and stone bridges at Musselburgh and other places in Scotland; then a bridge at Boston, in Lincolnshire, and another bridge over the Earn. All these, besides other bridges of iron, as well as the commencement of the Bell Rock Lighthouse, he was responsible for, most of them long before Waterloo Bridge was contemplated. Waterloo Bridge itself was modelled upon his bridge at Kelso, and the "Gentleman's Magazine" (1827, ii. 468) states that upon its being seriously undertaken Rennie, from "his superior experience," became the principal engineer.

The idea of the bridge, first proposed in 1766 in Gwynn's "London and Westminster Improved," was, perhaps, revived by Dodd, and he worked with the promoters of the undertaking. The promotion of the Bill involving the approaches to the bridge no doubt was something of a business, and in 1809, when the Act was passed, Dodd was but twenty-six years of age. Rennie was twenty-two years his senior. Dodd was never made chief engineer, and therefore was never deposed; but he was "so imprudent as to resign the situation" of resident engineer, which carried a salary of £1,000 a year.

The bridge was begun in 1813, and it was not under Dodd, but under Mr. Hollingsworth, resident engineer, that the younger Rennie was placed, before he went abroad, personally to superintend the foundations (1813-1814). He was therefore not indebted to Dodd for the experience, which was of a very practical nature. When employed to carry out the work of London Bridge many years later it is suggested that in all human probability Professor Cockerell, his brother-in-law, must have had some influence on him when designing the details. This rather implies that he could not have produced the work satisfactorily, and therefore it must be accounted for. Be that as it may, the matter of importance is Waterloo Bridge. The elder Rennie had erected a bridge of queenly grace, and had powers sufficient to transpose it into



WATERLOO BRIDGE, LONDON: DETAIL. JOHN RENNIE, ARCHITECT.

one of noble beauty. His son also, at the least, was self-reliant when he designed the details of London Bridge. Educating influences there must have been on the minds of those responsible for both bridges. The elder Rennie was acquainted with ancient architecture; the younger, we know, measured and analysed it in actual buildings. Like all the works of the Rennies, the bridges were built for posterity, and they show a real grasp of the principles of building art. In the truest sense the Rennies were architects, especially the elder.

George Dodd, likewise, is reputed to have made a study of architecture—a generalisation carrying little weight. His share in the promotion of the undertaking, and his unstable connection as resident engineer of Waterloo Bridge, are already ascertained. His further record is briefly recapitulated. He is said to have been the first projector of steamboats on the Thames, but his connection with the scheme was soon broken off. He was much depressed by this disappointment, and by the want of encouragement for a plan for extinguishing fires at sea. He rapidly went down-hill, through insobriety, became totally destitute, and died from exhaustion. This chequered career was more concerned with the promotion of undertakings than with building art. He may deserve more credit for his design for Waterloo Bridge than he has received, but what can that amount to? The managing committee were not satisfied with it, and they referred it to Rennie and Jessop for an opinion. It was found for the most part to be a copy of Peyronnet's bridge of Neuilly, with modifications. Various objections were pointed out by the reporting engineers, as well as to the plan he proposed for the pier foundations. They also showed that his estimate of the cost was altogether insufficient. As a result, no further steps were taken with his plan, but the committee approached

Rennie after the authorisation of a bridge had been obtained by Act of Parliament, on this occasion requesting him to furnish them with a design for suitable structure. Rennie's first step was to prepare an entirely fresh chart of the river, after an accurate survey by Mr. Francis Giles. In preparing his design Rennie was very particular to keep in view architectural appearance as well as utility. He meant it to enhance the beauty of the front of Somerset House. He contrived that the face of the northern abutment should be on a line with its terrace, and laid out the roadway to be as nearly on a level as possible with the Strand thoroughfare. Two designs were prepared—one of seven equal arches, the other of nine, the latter having been adopted for reasons of economy. The three-quarter Doric pilasters are after the design of the Temple of Segesta in Sicily. At the opening of the bridge on June 18th, 1817, Rennie respectfully declined the honour of knighthood. Most of the bridges of any length previous to his time had a considerable rise in the centre. Rennie, it should be borne in mind, studied the theory of the equilibrium of arches with energy and success. Up to his time again, there had been no rules laid down for the guidance of architects and engineers.

Of the Kelso Bridge it has been remarked: "It may almost be said to have commenced a new era of bridge building in this country." It is a beautiful structure with winning abutments and toll-house. The piers have three-quarter Roman Doric columnar pilasters surmounted by a plain block cornice, and the parapet is in character. The semi-elliptical equal arches, the columnar pilasters, the parapet proportion, and the level roadway are recognised in the greater work of Waterloo Bridge. In both bridges the character and the size of the parts show a fine sense of fitness. Kelso Bridge is in five arches, each of 72 ft. span, with pier



LONDON BRIDGE. JOHN RENNIE, ARCHITECT.

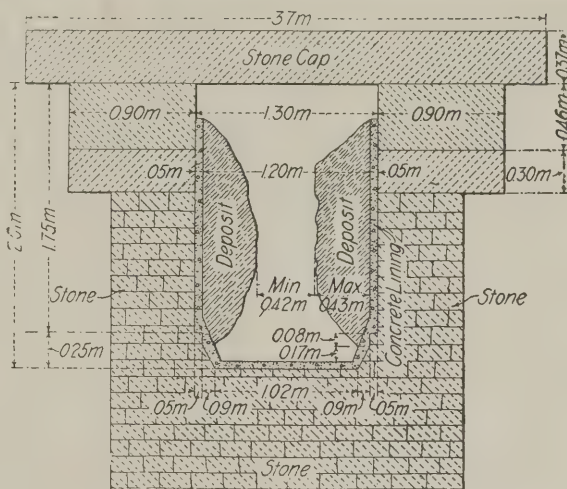
12 ft. wide. The nine arches of Waterloo Bridge each span 120 ft. and the piers are 20 ft. wide.

Rennie the younger carried out his father's fine design for London Bridge, again showing genius in the adoption of the elliptical arch for a span of 150 ft., resulting in a bridge of simple beauty. There can be no doubt about the younger Rennie's study of architecture. We know that he was receptive, and may therefore conclude that the detailing of the bridge is justly held to be the outcome of all his studies.⁶ He was very sound in what he said of street architecture; his comments upon London improvements are well worth reading at the present time. For example, speaking of the "Committee of Taste"—which included Sir John Soane, Sir Robert Smirke, and Nash—appointed to design improvements in the neighbourhood of Charing Cross, the Strand, Holborn, and Oxford Street, he remarks: "Certainly no committee ever discharged its duties better. To its labours we are indebted for Trafalgar Square and the improvements in the Strand, Cockspur Street, the Haymarket, the old Opera House, and those between Oxford Street and Holborn, which are really very good, and the architecture, although not altogether faultless, is nevertheless, taken as a whole, very effective; in fact, nothing like these improvements has been effected since."

He was candid in the expression of his regret, not so much that Cockerell's design was not accepted, but that Smirke's adopted designs for the approaches to London Bridge were so unworthy; and it will be realised there is no symptom of "bitterness" as colloquially understood. Rennie's own words are: "As to the architecture of the approaches to London Bridge, I referred the subject to my brother-in-law, Cockerell, a very accomplished and competent authority, and I exhibited his designs to the committee as well as some of my own. They, however, considered them to be too ornamental and costly, although they were as plain and simple as these important approaches rendered necessary. The committee, having rejected them, referred the subject to the late Sir Robert Smirke, then one of the Crown architects, and he designed the present buildings on both sides of the bridge, as far as King William Street on the north, and the old town-hall of Southwark on the south; and certainly, with all due respect to my late friend, Sir Robert Smirke, a more unworthy set of buildings was never designed. Thus not only has a rare opportunity of making handsome and appropriate buildings to one of the greatest thoroughfares in the world been lost, but the buildings are so low and badly built that the advantages of the ground, which it must have been foreseen, were capable of almost unlimited development as regards rental, have been in a great measure thrown away."

THE CONDITION OF THE PONT-DU-GARD.

THE Pont-du-Gard, at Nîmes, sharing the fate common to all great monuments of the past, has suffered considerable decay during its many centuries of existence; but though several times restored, it still remains one of the most remarkable examples of Roman constructive genius. It was built in 19 B.C., to carry over the Gard River the Nîmes aqueduct, which was about twenty-five and a half miles in length, and ascribed to Agrippa, son-in-law of Augustus. The bridge is certainly the greatest Roman monument in France, and is in a wonderful state of preservation. It consists of three tiers of arches, of which the piers and arch rings are constructed of perfectly fitted limestone blocks, with no mortar in the joints. Mortar and concrete may still be seen, however, in the aqueduct, both on the bridge and in parts now standing in the neighbourhood of the bridge. The



PONT-DU-GARD, NÎMES, WITH SECTION OF AQUEDUCT.

lowest tier of arches has six spans, the second has eleven, and the upper tier, upon which the aqueduct rests, has thirty-five short spans. The longest span of the two lowest tiers is 24.40 m. Mr. Frank P. McKibben, who recently investigated the condition of the structure, stated that the largest stone he was able to measure was a header in a pier, the exposed face of which was 3.39×0.59 m.

During a barbarian invasion of the fifth century the aqueduct at the ends of the bridge was destroyed. How much of the original construction remains at present it is difficult to say; but certainly the aqueduct, with its concrete lining and thick deposits, is original, as are also some other masonry portions both in the bridge and in the short arches in the neighbouring fields. Inscriptions on the bridge state that the structure was built by the Romans, repaired by the States of Languedoc in 1702, and restored by order of Emperor Napoleon III. in 1855. Two voussoirs near the crown of one of the arches bearing date 1702 are in very good condition, and as there are many other stones which show greater age than these there can be no doubt but that much of the Roman work still remains. In 1745 a highway bridge was built alongside the lower tier of arches, and except in a few places it is in excellent condition.

As shown by the accompanying sketch, made from measurements taken by Mr. McKibben, the depth and width of the canal on the Pont-du-Gard are 2 m. and 1.30 m. respectively, but the effective waterway was reduced by a concrete lining to a depth and width of 1.93 m. and 1.20 m. respectively. This lining is about 0.05 m. in thickness, and consists of a very dense con-

crete with no large aggregate, and it is in excellent condition. The deposits on the inner walls of the canal are remarkable both for their extent and preservation. At one time the canal must have been nearly closed with this material deposited by the water, but some of it has been removed to show the construction of the canal walls. At the place of maximum deposit the clear width is now reduced to only 0.42 m., from 1.20 m. as originally built, and at this section the maximum thickness of the deposit on one wall is 0.43 m. Needless to say, in the vicinity of the springs which supplied the aqueduct all rock is calcareous.

SCHOMBERG HOUSE, PALL MALL.

SCHOMBERG HOUSE, in Pall Mall, consisted, up to 1850 of a centre and two wings, the latter being of a type very common in London and elsewhere in England under the Stuarts of the Restoration. They contained a single chamber on each storey, and have been reckoned inconvenient of late years, many of them having been pulled down. They were neither of the gabled pattern of Kew nor of Swakeleys, nor of the regular classical form of Wren's domestic buildings; and their stately proportions, their marble halls and fine oak panelling have saved but few of them. Lopsided as Schomberg House now looks (a photograph showing its present condition is reproduced on page 165), it still retains that grandiose air which its architect meant it to have, and reminds the passer-by that long ago it was inhabited by a duke and a hero. There are views of it in the Crace Collection, and water-colour drawings by Bream and Shepherd and also plans are comprised among the pictures of Old London in the possession of Mr. Gardner.

The house cannot have been built for the celebrated Captain General of the Forces under William III., who was created Duke of Schomberg on April 10th, 1689, and killed at the Battle of the Boyne on June 30th, 1690. The patent creating the dukedom was made with what lawyers call "a special remainder." The first duke and his eldest son might, in course of nature, have succeeded to a German principality; so the English dukedom was limited to the younger sons. Of these the fifth, Charles, became second duke, but does not appear in English history, having, like his father, been killed in battle, in 1693, when he was succeeded by his elder brother, Meinhardt, already Duke of Leinster, in Ireland. He was probably the only one of the three who resided at all in London. He either built Schomberg House or so altered and improved an old house on the site that it assumed the appearance, familiar to Londoners, which it bore until 1850. The style shows that it is mainly contemporary with other buildings of the reign of William III., and goes to prove that while Wren was busy close by at Marlborough House, and on such works as Tring Park, Hampton Court, and Trinity College, bringing in what we now designate "Queen Anne," a different class of architectural art was active alongside. Examples may be found in all our older towns—Stamford, for instance, or Worcester, or Shrewsbury, and we need not suppose that the architect was a foreigner. At this time the south side of Pall Mall, from St. James's eastward, was bounded by the palace gardens, out of which Queen Anne granted a site to the Duchess of Marlborough. From the back of Schomberg House a passage led into the grounds of the palace, a passage which under the Regency led to the garden of Carlton House, and which still exists, marking off what was then the Marlborough from what was the Schomberg "compound."

Meinhardt, Duke of Schomberg and Leinster, employed one Peter Perchett to paint the staircase in panels, but none of his work survives. The duke died

in 1719, and the house passed to his son-in-law, Robert Darcy, third Earl of Holderness, and from him to his son, the last earl, by whom it was let to the great Duke of Cumberland, the hero of Culloden. He did not occupy it long, and in 1765 it was bought for the modest price of £5,000 by John Astley, a portrait painter, when what may be called its modern history began. Astley was a strange character—a portrait painter who, without attaining to any great eminence in art, was able to lay by a fortune. A wealthy marriage, no doubt, contributed to the purchase of Schomberg House, and to Astley it owed its division into three. To him also it owed the portico, with a Caryatid and a Persian, and a recumbent figure of "Painting," with a palette in her hand; this marks the central part of the house. The Ionic side portico looks too late for Astley, and a Doric doorway now built up is appended to the rebuilt eastern wing. It might have been thought that even in the dark age of architecture denoted by the date 1850 it was not necessary to make the new building quite so anomalous and ugly.

Schomberg House was inhabited after Astley's time by a long succession of remarkable tenants. Among them may be mentioned two great artists, Gainsborough and Cosway, for whose tenancy the reader is referred to the many local historians; but the little rooms occupied by Gainsborough from 1777 to 1783, and that in which he died, as described by Sir Joshua Reynolds, may be identified, being reached from a narrow staircase and a prettily decorated lobby. Bryan, a picture-dealer, Jervas, and after him Hone, artists, and in particular Payne and Foss, the great booksellers, may be mentioned among subsequent tenants. In the now demolished east wing was Harding's, a haberdasher's, visited by George III. and his daughters. The back shop with its shelves and fittings, still exists. Schomberg House is still used by the War Office, being made to serve as offices for the Director of Barrack Construction; but in view of the great alterations that have been made in Pall Mall during recent years, and the extensive works of rebuilding which are still going on, the house, or rather what is left of it, seems doomed ultimately to share the fate of its old neighbours, York House and Buckingham House, of which only the memory remains.

OUR PLATES.

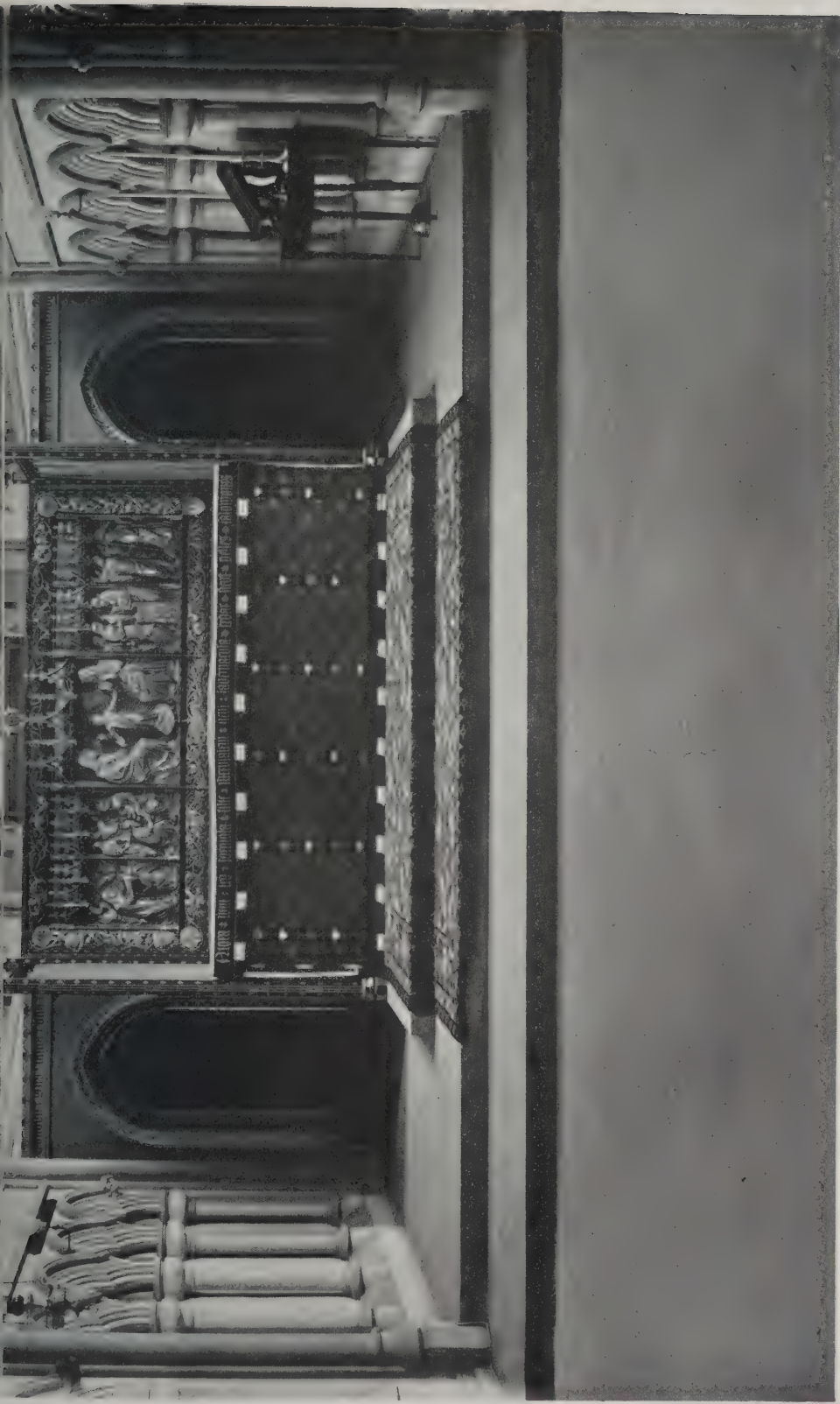
Reredos at Downside Abbey.

THE reredos recently completed in the Lady Chapel at Downside Abbey, near Bath (illustrated on the Centre Plate in this issue), was designed by Mr. J. N. Comper. The five main panels and encircling "Jesse tree" are in English alabaster, the canopies being of oak. Reading from left to right the subjects are:—(1) The Nativity, with St. Joseph and adoring angel; (2) The Adoration of the Magi; (3) The child Jesus standing on a rose between the Blessed Virgin Mary and St. Anne; (4) The Presentation in the Temple with Simeon and Anna; (5) The traditional appearance of Christ to His Blessed Mother after the Resurrection. The figure of Jesse is in the centre of the frame, immediately below that of the child Jesus, and to his left and right are David and Solomon, with other kings of the House of Judah on either side. In the right-hand bottom corner are the arms of the donor.

The whole work is based on surviving examples of the Nottingham school of sculptors, whose alabaster carvings were sent all over England, and even to remote parts of the Continent, in mediæval times. Following this precedent, Mr. Comper has decorated the whole in rich colour with large quantities of gold. The natural alabaster is left exposed for the faces and hands of the figures, only the eyes and hair being tinted. The draperies are gilded, with their "turn-overs" or linings powdered with ermine spots on the

Supplement to THE ARCHITECTS' AND BUILDERS' JOURNAL, Wednesday, August 13th, 1913.





NEW REREDOS IN LADY CHAPEL, DOWNSIDE ABBEY, NEAR BATH. J. N. COMPER, ARCHITECT.

alabaster. The background throughout is a pure cobalt blue, diapered with a flowing design in gold, and very small touches of red; green and black are used here and there as a foil to the main colours. The gold leaf, of special colour and quality, was beaten expressly for the work. The carving was executed by Messrs. J. McCulloch and Co., Ltd., and the decoration in gold and colour by Mr. H. A. Bernard Smith.

The New Nave to Hexham Abbey.

We reproduce as the frontispiece to this issue a photograph of the interior of the new nave to Hexham Abbey, carried out under the supervision of Mr. Temple Moore, F.R.I.B.A., with whom Mr. C. C. Hodges was associated as resident architect. A sum of about £30,000 was spent on this and other works of restoration. The architects were fully aware of the delicacy of the task which they undertook; and although it was inevitable that certain features of the work should be subjected to criticism, Messrs. Moore and Hodges are to be congratulated upon the very successful outcome of their labours. The fine old priory church of Hexham was begun by Wilfrid in 674, and completed by Acca, his successor. In 875 all but the stonework was destroyed by the Danes. The stones of which it was built had been used apparently in earlier work, many of them bearing Roman inscriptions. In the 12th century the buildings consisted of nave and transepts, choir, and aisles, and a massive central tower. In 1296 the Scots burned the nave, which, until the recent restorations, had never been rebuilt.

Bridge over the Tweed at Kelso, Scotland.

This bridge (illustrated on page 163), one of John Rennie's early designs, and the one upon which his greater work, Waterloo Bridge, was largely modelled, is dealt with in the article beginning on page 155.

Schomberg House, Pall Mall, London.

Schomberg House, the sole surviving building of the series which formerly constituted the old War Office, dates from the late seventeenth century. It was sadly mutilated about 1850, when its left wing was pulled down, to be replaced by a typically ugly piece of Victorian "classic" work. A history of the building (which is illustrated on page 165) is given in the article on page 158.

Tomb in the Cemetery of Père Lachaise, Paris.

The Cemetery of Père Lachaise, unlike its counterparts in this country, is a place in which the visitor may linger without any fear of becoming unduly depressed by its melancholy associations; and the reason for this is undoubtedly to be found in the fine character of the great number of tombs and monuments which it contains, many of which are admirable examples of sculptural and architectural art. We illustrate on page 161 one of the most striking of its tombs—that to Generals Lecomte and Clément Thomas, designed by M. Ernest-Georges Coquart.

THE ROME SCHOLARSHIPS.

THE schemes of competition for the 1914 Rome Scholarships have just been issued. The subjects are as follows: *Architecture*, an Art Gallery situated in the public park of a provincial town; *Sculpture*, models of the nude figure from life, drawings of the nude figure, of drapery, and of the hands and feet from life, drawings or photographs of original work by the competitor, and photographs or drawings of designs for decorative purposes with architectural features; *Painting*, drawings of the nude figure from life, painting of a head and of a figure from life in oil or tempera, figure compositions in colour, and designs for decorative purposes. Notification of intention to compete must be sent not later than January 24th, 1914, to the Hon. General Secretary, British School at Rome, 4, Victoria Street, Westminster.

THE TRAVELLERS' CLUB.

AMONG the new series of articles in "The Architectural Review" none are more attractive than those dealing with the London clubs, the photographic plates being particularly interesting, because they show work which very few people have the opportunity of seeing. The Travellers' Club is a striking instance of this. All are familiar with the quiet and forceful façade to Pall Mall, but, except for peeps through the trees from Carlton House Terrace, few know the beautiful garden front, while the interior features of the club will be a revelation to all who have not been within a very exclusive building. The article and the fine illustrations in the August issue of the "Review" are, therefore, of exceptional interest.

The design of the exterior of the Travellers' Club has frequently been compared with the Pandolfini Palace in Florence, in the same way as the adjoining Reform Club has been compared with the Farnese Palace in Rome; but a study of the façades will at once show how essentially English in character is Barry's work as contrasted with the great Italian buildings from which he derived inspiration. The Travellers' Club was formed in 1819 as a place of reunion for gentlemen who had travelled abroad, and the original headquarters were in a house in Waterloo Place. Increase of membership necessitated more accommodation, and eventually, in 1830-32, the present building in Pall Mall was erected from Barry's designs at the remarkably low cost of £23,000. The façades are stuccoed and painted. They display a sense of fine proportion and grace, and the detail is executed with great refinement. Within, the main staircase and the two large rooms on the first floor—the coffee-room on the Pall Mall front and the library on the garden side of the building—are the principal features. The library is especially noteworthy. Divided into three bays by delicately detailed Corinthian columns, with the windows looking on to the gardens of Carlton House Terrace, this room has a most delightful appearance, reminding one of a secluded college library, far from the noise and roar of London streets. Judging from the Travellers' and the Reform, Barry had a particular gift for designing rooms that would appeal to the book-lover; and though the library of the Travellers' cannot be said to compare in stateliness of effect with the library of its more dignified neighbour, it is nevertheless a very fitting expression of the more moderate requirements of the smaller building. One very characteristic feature of the library is the frieze of classic figures which makes the complete circuit of the room. These figures are Greek in feeling and, if not borrowed direct from some Athenian temple, have evidently been inspired both in the design and modelling by an Hellenic prototype. Their employment here is certainly not accidental, as we find a similar frieze in the library of the Reform Club, where the figures from the well-known inner frieze of the Parthenon are reproduced. Barry may in a limited sense be compared to Peruzzi, though it must be confessed that he had not the Italian master's knowledge or feeling for detail, and the comparison must be limited to the broad effects of his buildings, with their underlying suggestion of Greek refinement, rather than to the actual handling of his ornament or mouldings.

In the same issue of the "Review" are many other fine plates, including some of Sutton Place, Guildford (with an accompanying article by Mr. Walter H. Godfrey), examples of current architecture and garden design in America, a delightful plate of the third terrace at Powis Castle, and a very unusual example of a chimneypiece in Ham House, this last being one of the illustrations to an article on chimneypieces of the late seventeenth century by Mr. Ingleson C. Goodison.

HERE AND THERE.

ON the face of it, there seems not the slightest relation between the architect and the mountaineer, but I think that a glimpse into the life of so great a climber as the late A. F. Mummery does indeed afford a basis for the consideration of the question—Can the architect be original, or is it desirable that he should be? An intimate friend says of Mr. Mummery: "To me he was not a climber, but simply a fearless and independent thinker upon economic and other problems of modern life. . . . As I came to know more closely his intellectual and emotional character I could not fail to recognise that the qualities and methods of his intellectual travels were essentially the same as those he displayed in his mountaineering enterprises. As a thinker he was powerful, courageous, alert, persistent, and, above all else, original in the proper meaning of that term—that of creative independence. Though there was nothing idly freakish in his nature, or resentful of authority and precedent, there was a strong disposition to take his own course, to depart from beaten tracks, and to seek difficulties for the joy of overcoming them. . . . For a nature like his we may probably adapt to the intellectual plane the famous saying that 'Riches is the impediment of virtue.' . . . For working with him intellectually was a constant series of surprises at his fertility of mind in using the knowledge he possessed, gathered somewhat carelessly from many sources and kept for use."

Now it seems to me that there is a good deal in the foregoing which is very relevant to the question we have raised. For, after all, is not individuality—the expression of personal taste and character—the touchstone of a great architect? I refrain from using the word "original" in this connection, because it recalls at once a sorry host of architectural failures and monstrosities. The old saying about there being nothing new under the sun is always having a new illustration—only this last week the doctors in congress, at one of their many meetings, have been telling us of the dentistry of the Egyptians—so that we may well dismiss all thought of novelty possessing merit as a thing merely different from anything else. Such frenzied splashers as the Futurists are "original," in the worst sense, and we can no more find anything to admire in their work than we can (or ought to) in the most wriggly creations of Art Nouveau—now decently buried, let us hope.

On the other hand, an architect may be very erudite, and may possess good taste, and, further, he may be able to put together the architectural elements in an accepted manner, yet his work may be dull in the extreme; just as another man, though well read, a well-informed scholar, and able to speak good English politely, may be a very dull companion in book or conversation, for the simple reason that he has nothing individual to say. And it is in this respect that I think the character of such a man as the late Mr. Mummery has its application to architecture. To just travel over the old Classic ground, or, equally, the old Gothic, Renaissance, or any other familiar ground, and to do things very correctly, may be proof of study, but it will never be interesting, because it amounts to very little more than mere replica work: and on that account I must confess to experiencing a sense of distaste for some of the academic architects—prosy architectural gentlemen—who have provided us with many dull buildings. Of course, if we could set the clock back a few centuries I suppose we should all be working unconsciously on a tradition. But Art to-day is altogether self-conscious. Nevertheless, I think we ought to weave into our work something essentially individual. We may not, for instance, be able to improve upon the Ionic Order, but I see no reason why we

should not introduce some variant in the detail of the capital or the base. It is true that in speech and writing we have to follow a grammatical arrangement which was formulated for us a very long time ago, but there are always new things to say, and a fresh way of saying them, to men who possess the ability. Similarly, though our architectural alphabet may have been settled in a past now far distant, it is open to us to make fresh use of it. Hence the attraction of the work of those men who solve an architectural problem in their own way and add that touch of individuality which raises their achievement above the level of mere adaptive copyism. After all is said, it is ideas that count.

I have been watching the newspapers for some refutation of that story of the mistaken architectural identity with which the M.P. for Canterbury recently enlivened a Parliamentary Committee, but nothing has appeared so far. I cannot turn back to any personal knowledge of the Admiralty buildings competition, because at that time my thoughts were not directed to the subject of architecture, but I have always been under the impression that the selected architects owed their success to the very wonderful set of drawings which they submitted. Yet this is Mr. Bennett-Goldney's story: The competition designs were shown to a certain number of privileged persons of repute, including a high royal personage and the then President of the Royal Academy. One of the chief representatives of the Office of Works at that time was anxious to explain to the visitors the merits of what was considered the best design, and accordingly he asked one of his subordinates which set of drawings had been most highly approved. The subordinate, by inadvertence or ignorance, pointed to the wrong set of drawings, and the gentleman representing the Office of Works thereupon took pride in pointing out the merits of the scheme; the visitors agreeing with his eulogistic remarks. Afterwards, when it was found that the wrong set of drawings had been shown, the chief of the department decided that there was no going back on what had received such glowing commendation from such distinguished sources. So the design in question, more or less modified, was carried out.

This is certainly a very good story, but I have a lurking sense that it is wrong somewhere: albeit the "Observer" hastens to provide us with a companion instance of official inadvertence in the case of the barracks for the King's Guard at Ballater, near Balmoral, which were built from designs intended for cantonments for troops in India. But will not someone come forward to give us greater confidence in an official competition?

The Garden of Eden has now been located definitely, in the north-western district of London, not far from Neasden Station: and, accepting the statement of a "Daily News" reporter as painfully veracious, a builder is responsible for it. "The Garden of Eden," repeated the obliging policeman. "Yes, sir. Bear to your left and you'll find it at the rear of the White Hart Hotel." Thus directed, we come upon the place where the builder has made an attractive little village out of a collection of ramshackle cottages amid bad roadways. Here, so one reporter says, cast-iron cupids, each turning the scale at a hundredweight, and holding flambeaux aloft, greet the visitor with dimpled smiles; and quotations from Shakespeare, Pope, and Robert Burns meet the eye at unexpected corners. It must be all very wonderful, "Ye Garden of Eden," as the builder calls it, and I hope that the R.I.B.A. will pay an official visit. There must surely be many among its members who, even in a world of client-hunting, still retain their professional innocence unsullied.

UBIQUE.



UNIVERSITY OF ILLINOIS

TOMB OF GENERALS LECOMTE AND CLÉMENT THOMAS IN THE CEMETERY OF PÈRE LACHAISE, PARIS.
ERNEST-GEORGES COQUART, ARCHITECT.

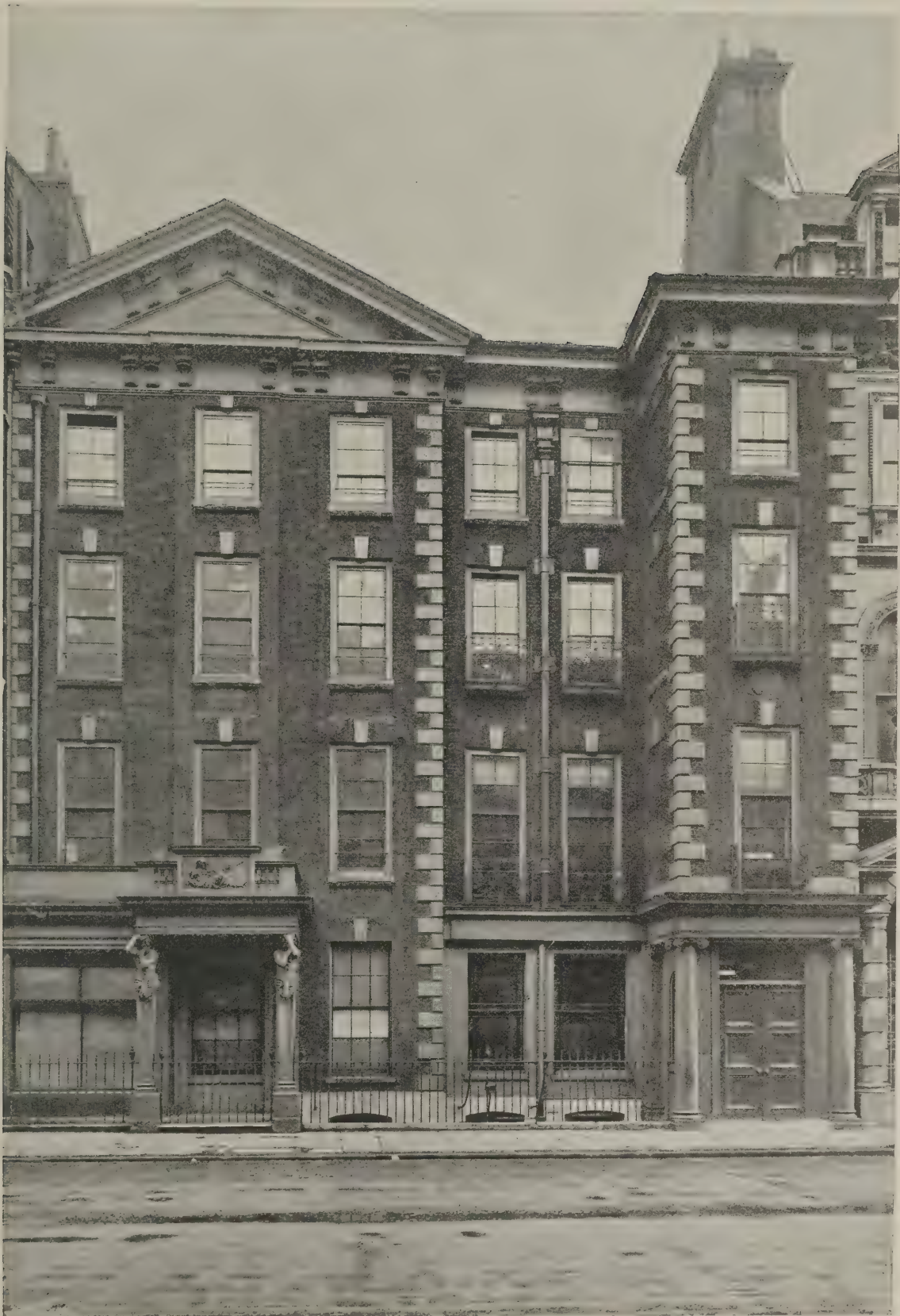
(See page 159.)

LIBRARY
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BRIDGE OVER THE TWEED AT KELSO, SCOTLAND. DESIGNED BY JOHN RENNIE.
(See page 159.)

LIBRARY
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SCHOMBERG HOUSE, PALL MALL, LONDON.

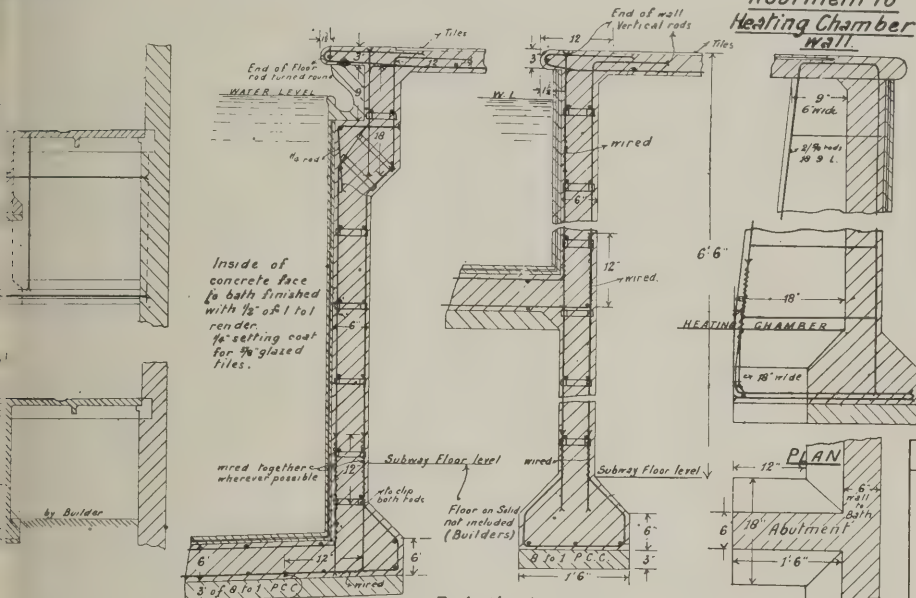
(See page 159.)

Reinforced Concrete Construction. Drawing N^o 1.

Floor Beams & Slab.

Build in brackets for supporting handrail, round three sides of bath. Build in sockets for dressing boxes etc, etc. Build in inlet & outlet pipes & gratings etc etc. Build in scum trough. Form pockets for hinges for swing doors etc. Allow for leaving holes for pipes, wires etc etc as directed.
The floor to be finished in Lavy's etc with Grano. Entrance Hall & Shower bath prepared for terrazzo. Superintendents room & Pay Office prepared for linoleum.

Detail at Scum Trough. Detail at Cill. Detail at Abutment to Heating Chamber wall.



Beam ③ 9'4" span 6'9"

Beam ③^a 9'4" span 7'6"

Beam ⑨ 4'4" span 3'6"

Beam ④ 10'5" span 10'8"

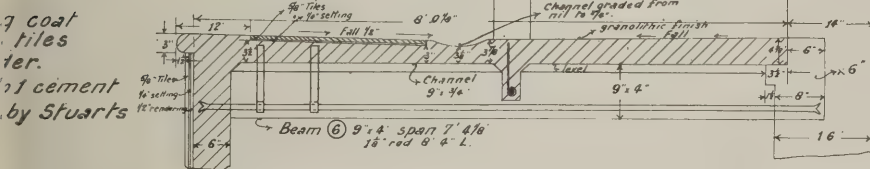
Beam ⑤ 10'5" span 6'3"

Beam ⑦ 6'4" span 3'3"

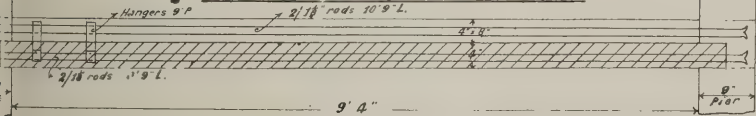
Beam ⑧ 6'3" span 6'8"

Beam ⑥ 9'4" span 7'4"

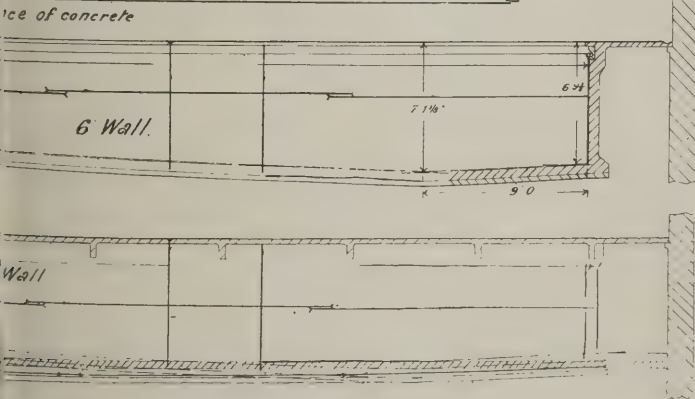
E P Wells. C E
94 Larkhall Rise
Clapham. S W



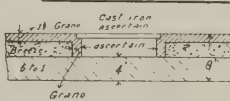
Beam ① 8'4" Upstand 9'4" span



Note. Concrete for Bath bottom & sides 4 to 1 (2:2:1)
other concrete 5 to 1 (3:2:1).



Section thro Channel



COMPETITIONS.

King Edward VII. Welsh National Memorial.

Designs are invited for a proposed sanatorium in North Wales, to cost £20,000. Drawings to be delivered not later than September 30th, 1913. First, second, and third prizes of £100, £50, and £30 respectively. The premium paid to the architect who may be appointed to carry out the work will merge into the commission. The sanatorium to be designed to accommodate 154 adult and 30 children patients in the first instance, but the plans must show how any necessary additions to accommodate another 100 patients in blocks of twenty-five can be dealt with. Each design to have a report annexed, giving concise description of the buildings and materials, with cubical contents, price per cubic foot, as well as total cost of proposed buildings. Total estimate to include cost of clearing site and full details of expenditure. The buildings to be of fire-proof construction and to be lighted by electricity generated on the premises. The sanatorium is to consist of the following buildings: (1) Children's block, to be divided into wards of four beds; (2) wards for ambulant patients intended for sleeping accommodation, with complete separation of male and female sides—seventy-five beds for males and forty-five for females; (3) wards for patients requiring nursing. These must face south and contain twenty beds for males and fourteen for females; (4) a dining hall block capable of division into two parts for men and women; (5) administrative block or blocks, with usual accommodation, to contain bedrooms for twenty maid servants and separate bedrooms for sixteen nurses; quarters of medical superintendent to be in a corner of this block with separate entrance; (6) power station to contain besides usual accommodation: A sterilising room for clothes, etc., a steriliser for sputum, a laboratory, a mortuary, a post-mortem room, a garage for two motors, laundry—one for both staff and patients—sleeping accommodation for eleven members of male staff; (7) a gate lodge with usual offices. Drawings required (to a scale of 16 ft. to an inch): (a) A plan of each floor of every building, (b) general sections, (c) elevations of at least one side of each building or type, (d) block plan showing main drainage to same scale as plan accompanying the conditions. Full particulars of competition to be obtained from the Secretary, Memorial Offices, Westgate Street, Cardiff.

Garden City Lay-Out, Bradford.

A competition has been instituted for laying out a site of fifty acres for workmen's dwellings, on garden city lines, at Southfield, Odsal. The assessor is Mr. Henry T. Hare, F.R.I.B.A. Designs are to be delivered not later than October 4th, 1913. The author of the design placed first is to be appointed architect to the estate, and will receive, in addition to his commission on buildings to be erected, the sum of £150 as payment for his scheme. If the scheme falls through, or is delayed for more than twelve months, he will receive £300, to form part of his commission if and when the scheme is proceeded with. The second and third prizes are of £200 and £100 respectively. Designs are to conform to the building regulations of the city. No alternative designs will be considered. Any design will be excluded from the competition if the assessor determines that the probable cost will exceed the competitor's estimate by more than 10 per

cent. Any questions relative to the competition to be received by the Town Clerk not later than August 16th. Requirements: Competitors are advised to visit the site. It is suggested that the houses should average twelve to the acre, giving a total of 600 houses, arranged in blocks or groups of several houses. No single block is to consist of more than eight houses. Four types of houses are required, as follows: (a) About 200 costing £165 each; (b) 200 costing £182 each; (c) 100 costing £243 each; and (d) 100 costing £292 each. About twelve shops with residences of type (c) attached will also be required. Each house is to be provided with baths and w.c. and no house to have less than two bedrooms. Drawings: (i.) Block plan to scale of 80 ft. to an inch. No drains or sewers need be shown. (ii.) Plans, sections, and elevations of a block of houses of each type to a scale of 8 ft. to an inch. (iii.) Perspective view of the estate or a portion of it. No report required, but notes as to materials, etc., to be indicated on the drawings.

Manchester New Royal Exchange.

Royal Assent having been given to the Manchester Royal Exchange Bill, the directors have decided to institute an open competition among architects for the new building. Mr. J. S. Gibson, F.R.I.B.A., has been appointed assessor.

COMPETITIONS OPEN.

AUGUST 25.—BLOCK OF COTTAGE HOMES, TENDRING.—Tendring Union Guardians invite competitive designs, specifications, and estimates for a pair of cottage homes for children. Particulars from Mr. A. J. H. Ward, Clerk to the Guardians, Tendring Union, Harwich.

SEPTEMBER 1.—TOWN PLANNING, HIGH WYCOMBE.—Schemes for the town planning of the borough are invited by the Borough Council. Premiums £25, £10, and £5. Particulars, T. J. Rushbrooke, Borough Surveyor, High Wycombe.

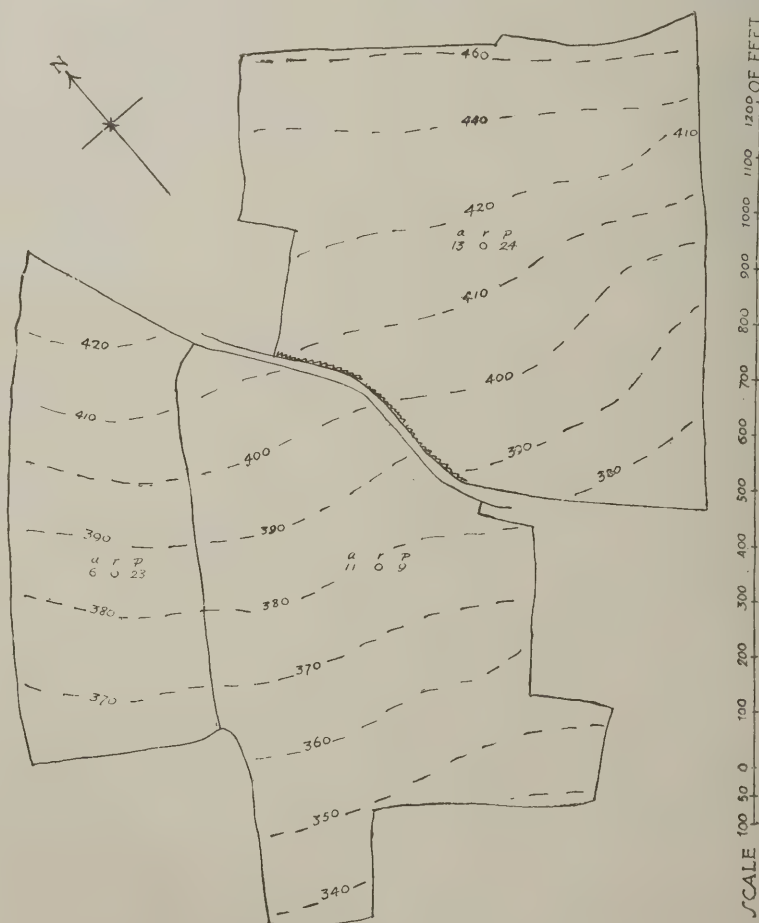
SEPTEMBER 3.—BRANCH STORES, WHEATLEY HILL.—The Board of Management of the Haswell Co-operative Provision Society, Ltd., invite competitive plans and estimates for new branch premises at High Wheatley Hill. Premiums £25, £15, and £10. Particulars and copies of sketch plan can be obtained at the office of the General Manager, Haswell Co-operative Society, Ltd., Haswell.

SEPTEMBER 30.—FIRE STATION, BLACKBURN.—Blackburn Corporation invite designs for a new fire station and firemen's dwellings, from architects practising within the borough. Premiums, £100, £50, and £25. Assessor, Mr. F. G. Briggs, F.R.I.B.A. Apply, Town Clerk, Town Hall, Blackburn.

SEPTEMBER 30.—SANATORIUM, NORTH WALES.—The King Edward VII. Welsh National Memorial Committee invite designs for sanatorium to cost £20,000. Premiums £100, £50, and £30. Particulars from Secretary, Municipal Offices, Westgate Street, Cardiff. Summary and site plan on this page.

OCTOBER 4.—WORKING CLASS DWELLINGS, BRADFORD.—The City of Bradford Council invite architects to submit designs for laying out an estate of 50 acres and for erecting small houses thereon for the working classes. Mr. Henry T. Hare, F.R.I.B.A., will act as assessor. Particulars may be obtained on application to Frederick Stevens, Town Clerk, Town Hall, Bradford. (Deposit, one guinea.) Summary on this page.

OCTOBER 31.—TOWN PLANNING SCHEME, YORK.—Premiums of £100, £50, and £25



SITE PLAN FOR NORTH WALES SANATORIUM.

are offered for a town-planning scheme for certain areas in and near York. Particulars, F. W. Spurr, City Engineer, Guildhall, York.

NOVEMBER 1.—ROYAL PALACE AND LAW COURTS, SOFIA.—Particulars, Commercial Intelligence Branch, Board of Trade, Basinghall Street, E.C.

NO DATE.—WORKMEN'S COTTAGES, SKELMANTHORPE.—Skelmanthorpe Urban District Council invite competitive designs for twelve workmen's cottages, to be built by the Council. Particulars, Clerk, Wilson Fisher, Skelmanthorpe, near Huddersfield.

IN PARLIAMENT.

(By Our Press Gallery Representative.)

Ancient Monuments in Wales.

The fourth report of the Royal Commission appointed to inventory the ancient and historical monuments and constructions of Wales and Monmouthshire records a year of steady progress. The inventory of the ancient monuments of the county of Flint has been published. The inventories of Radnorshire are in the press and the volume relating to that county will be published in the course of this year. The inspection of the antiquities of Denbighshire has been completed by Mr. A. N. Palmer and the descriptions of them are ready for preparation for the press.

The Embankment Garden.

Mr. Wedgwood Benn has informed Mr. King that the plans for the Embankment Garden adjoining the House of Lords, which are now under consideration, contemplate a single sweep of garden throughout the area available.

Regent Street Quadrant.

Mr. Boyton asked the President of the Board of Agriculture whether it was the intention of the Office of Works to appoint an architect to prepare a design for completing the rebuilding of the Regent Street Quadrant, together with the buildings in Piccadilly Circus and the County Fire Office, to which all parties must conform, or whether the lessees' architects were to be invited to send in drawings based on the findings of the Committee recently appointed by the Department.

Mr. Runciman replied that the Office of Works had no present intention of appointing an architect to prepare designs, but any sent in by architects acting for lessees would receive careful consideration based on the report of the Committee referred to.

The New Delhi.

Mr. Montagu (Under-Secretary for India) assured Mr. King that the Government of India wished to see Indian craftsmen utilised as fully as possible in the building of the new capital of Delhi. He promised to draw the attention of the Government of India to a suggestion made by Mr. King that in connection with the building of the capital an attempt should be made to attract, educate, and employ native youths anxious to take up architecture as a profession.

Mr. King asked whether the Government of India had already held an open competition for official residences in the new Delhi and that the prize had been awarded to Ram Rup, a master builder, said to be like all the Jaipur craftsmen, as clever with tool as with pencil; whether he would bring these facts to the notice of

the selected architects for the new Delhi, and whether the design of Ram Rup would be utilised in any building shortly to be erected.

Mr. Montagu replied that the Secretary of State had no official information, but, assuming the facts to be correct, they would be well known to the Delhi Executive Committee, under whose directions the buildings would be constructed. The Secretary of State was unable to say whether the prize design would be utilised.

Mr. King asked whether Mr. Montagu was aware that Ram Singh, who succeeded Mr. L. Kipling as principal of the school of art at Lahore, was employed by Queen Victoria to decorate the ballroom at Osborne House and to design and carry out the artistic decorations for the recent Durbars; and whether Ram Singh would be consulted in connection with the building of the new Delhi.

Mr. Montagu replied that the Secretary of State understood that the facts were generally as stated in the first part of the question. As regards the second question he had no information as to the intentions of the Government of India.

Designs of New Government Buildings.

The Public Buildings Expenses Bill came up for consideration on report in the House of Commons last week. It is proposed to apply £145,000 of the £600,000 allocated under the Finance Act, 1908, to public offices at Westminster to the buildings and other works connected with the Home Office Industrial Museum (£25,000), Admiralty additional accommodation (£55,000), and the College of Art, South Kensington (£65,000).

Mr. Bennett-Goldney moved an amendment in favour of throwing open to public competition the designs for the proposed new buildings that are not completions to existing blocks and leaving the choice of the selected designs to the First Commissioner, with the assistance of a body of persons equally competent to adjudicate upon architectural questions of the kind, the architectural staff in the Office of Works being permitted to compete. He said it was proposed to spend £145,000 of public money upon public buildings, but no vestige of any design whatever of elevation or of style of architecture had been presented either to the House or to the Department which was responsible for the spending of the money. It had been suggested in the Committee that the designs of those public buildings, costing the State a vast sum of money, should be left to the permanent staff of the Office of Works. But what were the reasons adduced for this very peculiar state of things. The only reason given was that the permanent staff was a singularly expensive staff, and the head of that staff was a very amiable and very estimable public official. An enlightened public opinion, supported by an unanimous Press, demanded that our future buildings should be more worthy of the capital of the Empire and more worthy of the great Department which was responsible for building them. They had only to look at the pepper-boxes on the top of the National Gallery or at the Albert Hall and the Albert Memorial. He recalled the remark made by an eminent German statesman when he was being shown round London and was asked what he thought of its buildings: "Yes, yes; very good, but why not place the ornament upon the top of the cake?" The time had come when they ought to insist upon the designs of great public buildings being thrown open to competition. He believed if the First

Commissioner of Works would only combine with the Institute of Architects and the Royal Academy he would easily be able to bring together a body of men who would be able to adjudicate fairly and squarely between the different designs.

Mr. Wedgwood Benn said he hoped the amendment would not be pressed. The proposed buildings were not very big or expensive, and although it was the practice of the Office of Works to throw open to competition large and important buildings, they also retained a staff of architects for the purpose of designing and carrying out smaller buildings of this kind. The amendment was unnecessary and would involve considerable expense.

The amendment was rejected by 254 votes to 90. The Bill was afterwards read a third time and sent to the House of Lords.

Westminster Hall Repairs.

In the House of Commons, Mr. Wedgwood Benn stated that the First Commissioner of Works could not yet say how long the scaffolding in Westminster Hall was likely to remain, but the examination of the roof would be completed about October. In reply to a question regarding precautions against fire, he stated that the Hall was under the constant observation of the day and night police and was adequately provided with fire appliances.

Office of Works Architects.

Mr. Bennett-Goldney asked Mr. Wedgwood Benn if he would ascertain how many public buildings costing more than £15,000 had been designed by the permanent staff of the Office of Works since 1906, including only such buildings as had been built, were under construction, or had been sanctioned by the Government to be constructed, and if he would give a list of these buildings.

Mr. Wedgwood Benn said he would send the honourable member a list of fifty-three buildings. In further reply he stated that the total number of architects of all grades on the establishment of the Office of Works was sixty-one. Of these three were Fellows, twenty-four Associates, and four Licentiates of the Royal Institute of British Architects. The three Fellows attained their rank in 1891, 1906, and 1912 respectively.

The New College of Art.

Mr. Bennett-Goldney asked at what cost in thousands of pounds a public building was regarded officially by the Office of Works as a large public building and a small public building; whether the new College of Art, which was estimated to cost £65,000 and had been officially classified as a small public building, was to be a three-storey building; and how many square feet of ground this new building was to cover.

Mr. Wedgwood Benn said the Board had no fixed scale under which a building was classified as a large or a small public building. As plans for the new College of Art had not yet been definitely settled, it was premature to say how many storeys it might have. The area of the site was about 16,630 square feet, which would be covered by the buildings, with the exception of the necessary areas for light and air. Designs had not been prepared either of the elevation of the New College of Art or of the new extensions of the Admiralty Buildings. An elevation for the new Industrial Museum had been prepared and could be exhibited in the Tea Room if desired. The estimates were made from sketch plans prepared in the Department, but not settled in detail.

MOTOR NOTES FOR BUILDERS AND CONTRACTORS.

MOTOR TRUCK HIRING AND THE LAW. SELF-STARTERS ON COMMERCIAL VEHICLES.

[Specially Contributed.]

THE hiring of a motor truck from the owner creates in law a form of bailment known as *locatio rei*. Where the owner of personal property lets it to another party, who is to pay for the use of it, the contract is for their mutual benefit, which fact is important in determining the rights and liabilities of the parties. A party who hires a motor truck from another is bound only to take ordinary care of the machine and is not responsible for damage inflicted to the motor truck if ordinary prudence has been exercised while the machine was in his custody as a bailee.

The degree of care, of course, which the hirer of a motor truck should exercise would depend upon all the facts and circumstances of the case, but still it is only ordinary care as the law defines this term which is necessary to be exercised. The hirer is bound to render such care in the case as the owner has a right to expect that a man of ordinary capacity and caution would take of the motor truck if it were his own under the same circumstances.

When a motor truck is hired the bailee, the hirer, is responsible for the negligence of his servant, the chauffeur, provided that the negligence took place when the chauffeur was in the discharge of his duty or obeying the commands or instructions of the master, the owner, express or implied.

Competent Licensed Chauffeur Necessary.

In a recent case, however, the question is considered of the liability of the owner of a motor truck for the negligence of a driver employed by him where he has let the motor truck with such driver to a third person, and such negligent act occurs while the motor truck is so let. In this case the defendants let their vehicle with a licensed chauffeur in charge of it to another for the period of two days. The one to whom the machine was let gave orders to the chauffeur as to when and where the car should be driven, as one would order the driver of a common vehicle hired by the day or hour, and while the chauffeur was obeying such an order the negligent act occurred, causing the injury complained of. The court considered the analogy between a contract such as this and that of hiring horses, vehicle, and a driver, and held that the same principle was controlling in both cases, saying in this connection: "If the defendants had furnished horses, a vehicle, and a driver under a similar contract, instead of a motor truck and a driver, there would be no doubt of their liability for the negligence of the driver in the management of the team. The question is whether the same result should be reached upon the facts of this case. The analogy between the two kinds of contract is very close. The management of a motor truck properly can be trusted only to a skilled expert. The law will not permit such a vehicle to be run in the streets except by a licensed chauffeur of approved competency. The danger of great loss of property by the owner, as well as injury to the chauffeur, his servant, is such as to make it of the highest importance that care should be exercised in his interest and that the control and management of the machine should not be given up to the

hirer. The reasons for applying this rule in a case like the present are fully as strong as when a carriage and horses are let with a driver."

Where persons have hired a motor truck from one who furnishes the driver, the latter is bound at least to use reasonable and ordinary care to avoid injury to such persons, and to this end he is bound to keep a proper lookout for persons and vehicles upon the street and to have his machine under such control as to avoid collisions. Where a person who has hired a motor car is injured by the negligence of the driver furnished by the owner, and the injury would not have happened but for such negligence, it is decided that the owner will be liable to the passenger for the injuries received, as where the driver negligently ran near to a street car at a high rate of speed without having his machine under proper control, and without such negligence the accident would not have happened, even though the brake-rod broke and such breaking had been caused by a latent defect.

So a passenger in a motor vehicle for hire, riding beside the driver, was held not guilty of contributory negligence in not warning, advising, or directing the driver in cases of emergency or in not attempting to control the acts of the driver. When not acting within the authority of the employment the owner would not be responsible for an injury to the motor vehicle committed by the chauffeur as a result of his own wilful malice, in which the master took no part.

If a motor truck is lost through theft, or is injured as a result of violence, the hirer is only answerable when imprudence or negligence caused or facilitated the injurious act.

Where a motor vehicle which is hired out is lost or injured, however, the hirer is bound to account for such loss or injury.

The owner of a motor truck, or the party letting it out, is obliged to deliver the motor vehicle hired in a condition to be used as contemplated by the parties; nor may the owner interfere with the hirer's use of the motor truck while the hirer's interest is in it, or right in it continues. Even if the hirer abuses the motor truck, although the owner may then, as it is said, repossess himself of his property if he can do so peaceably, he may not do so forcibly, but must bring an action. If such misuse of the motor truck terminates the original contract of bailment, the owner may demand the motor truck, and, on refusal, bring trover; or, in some cases, he may bring the action of trover without demand.

The owner of a motor truck who lets it out for a term should keep the vehicle in good order; that is, in proper condition for use, and if expenses are incurred by the hirer for this purpose the owner must repay them. There is, however, some uncertainty on this point. The true principle would seem to be that the owner is not bound (unless by special agreement, express or implied, by the particular circumstances), to make such repairs as are made necessary by the natural wear and tear of the motor truck in using, or by such accidents as are to be expected, but is bound to provide that the motor truck be in good condition to last during the time for which it is hired, if that can be done by reasonable care, and afterward is

liable only for such repairs as are made necessary by unexpected causes.

Self-Starters on Commercial Vehicles.

From time to time the question is agitated why engine starters are not supplied on commercial cars. The slowness of the makers in supplying such a necessary feature is hard to understand. Is it because they are so occupied in filling orders that they have no time to improve their product, or is it because the user is not yet wise and has not demanded the starter? Pleasure cars are now very often supplied with the starter as a necessary part, but is it necessary? No, but it is extremely convenient. It is a luxury which everyone who owns a car appreciates, but on a truck it is a necessity. With drivers it is customary to let the engine run at all short stops, and often at long ones. In congested traffic, when held up at a railroad crossing, and in freight yards, the trucks may be seen standing from two minutes to half an hour at a time with the engine running. These engines are burning petrol, and petrol spells money, and before another year it looks as if it would spell money in capital letters. With the price of petrol soaring higher every year, the matter of the fuel consumed while engines are running idle becomes a consideration, at least to the business house using a commercial car. Although the wear and tear on the engine in a year's time amounts to something, it is secondary in importance to the petrol cost. True, the engine is usually throttled to the low point, but not always, and even when so throttled the fuel consumed amounts to surprising figures in a year's time.

Even where the stops are short, from two to three minutes, it has been found that the average delivery car engine is allowed to run in the neighbourhood of twenty to twenty-five hours per week. The idle time of running during an entire year amounts to almost three months. With an engine starter nearly all of this waste is done away with. If the truck can be started from the seat by simply pulling a lever, pushing a pedal or button, the driver will allow the engine to stop when the car comes to a stand. Under present conditions time is often lost by excessive cranking if the carburettor is not in adjustment, or the ignition or timing just right, and the driver, knowing this, hesitates to stop the motor for fear he may have trouble in starting it again. In winter cranking the engine necessitates getting into the mud, and although for short stops it would not be necessary to run the engine in order to prevent freezing, still the engine is allowed to run because the driver does not want to get into the street to crank it.

I have been advocating the manufacture of the engine starter as a part of the engine, but most of the devices, with the sole exception of the Delco, which is such a successful feature on the Cadillac cars, are still in the nature of accessories, which must be applied to the finished car. Manufacturers should supply commercial cars with starters forming a part of the standard construction. This will be the eventual outcome, and the maker who incorporates a satisfactory starter as a part of the car will have an advantage over his competitors.

CONCRETE AND STEEL SECTION.

(MONTHLY.)

THE MODERN FLAT ROOF: ITS ADVANTAGES AND CONSTRUCTION.

BY HARRISON FIELDING.

The system of covering in a building with a flat roof is quickly coming into vogue as a logical and an economical form of roofing, and one which in some respects possesses distinct advantages over the sloping roof. The principle of the flat roof is many generations old, but it was not until recent years that the adoption of improved methods of construction and of more suitable materials placed it beyond question as a thoroughly practical system of roofing. We see it first being used tentatively for minor operations, such as roofing bay windows, or small flats to back quarters. Soon, however, its uses were extended, until at length flat roofing for huge factories and blocks of flats has become quite common. Its increasing adoption for such work is no doubt to some extent due to the progress of reinforced concrete construction, a system to which the flat roof is particularly applicable.

A flat roof, constructed in one of the forms described later, renders either a habitable or an industrial building impervious to outside changes of temperature—an appreciable merit in the summer months, when one often finds the interior of a slated or tiled building more insufferably warm than the outside air. The smaller superficial area of roof timbering required with a flat roof, and the consequent saving, is another considerable advantage. Then, as gables are dispensed with, walls may be thinner, and the piers and buttresses that are often necessary to take the thrust of a pitched roof become unnecessary; which effects an obvious saving in brickwork. Again, with flat roofs to a domestic building, sloping ceilings in bedrooms are obviated. With one of the materials mentioned later as a covering to the flat roof, the vagaries of weather (and especially driving rain), which try a slated or tiled roof so severely, need not be feared, provided reasonable care is taken in laying the material. Fewer downpipes are required to drain away rainwater, and these can be arranged to suit the elevation in as conspicuous or as inconspicuous a position as desired.

Another distinct advantage the flat roof offers is the extra accommodation, amounting virtually to a whole floor of open-air rooms where, in the summer months, one may work, eat, and sleep. One portion, facing south, could be shut off as a roof garden and covered in with posts and cross-pieces in the form of a wide pergola. Other uses to which a flat roof may be put are for a playground, a drilling place, a clothes-drying yard, or a rainwater tank. A considerable saving is effected with the latter, because, in the ordinary way, a rainwater tank is constructed underground, a work which costs considerably more than utilising an already existing tank, by making the parapet walls watertight, as shown in Fig. 3.

There are two kinds of asphalt used in building work—English and foreign. The latter, a bituminous limestone, is the

natural product, and is obtained from Seyssel (South of France), Limmer (Hanover), and from different parts of Switzerland. The former is a manufactured article. Asphalt has many valuable qualities, being pliable, non-inflammable, proof against frost, rain, and vermin, sanitary, and lasting.

To receive asphalt concrete should be finished with a screeded surface, and, together with the portion of parapet walls to be covered, be "bone-dry." The asphalt is boiled up in cauldrons on the site, raised to the roof in buckets, and, whilst hot, spread in two half-inch thicknesses.

Fig. 1 shows a section through the parapet and portion of a flat roof which is formed of 1-in. asphalt laid on 6-in. cement concrete reinforced with 4 in. by 3 in. rolled steel joists. One of the proprietary waterproofing preparations can be used with advantage in the concrete, which

should be laid to fall to the gutters in at least 1 in 40. A skirting is formed in cement where the roof adjoins parapet. Over this the asphalt is laid, and is taken up about three courses of the brickwork, and tucked into each joint as shown. The parapet is finished with a 4-in. weathered stone coping. Fig. 2 illustrates a flat roof with no parapet, the rainwater draining direct to a cast-iron gutter. Asphalt may be laid on a timber roof of joists and boards, but it is desirable to lay the boards with felt before spreading the asphalt. No lead or zinc flashings, drips or rolls, are required as they would be for a lead or zinc roof.

Several forms of special sheet combination roofing materials are available for flat roofing. Fig. 3 illustrates the covering of a timber roof with one of them. To obtain the necessary fall, a furring plate is laid on the joists, on top of which is nailed 1-in. boarding. Where the roof butts into para-

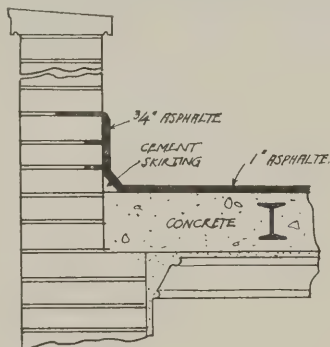


FIG 1

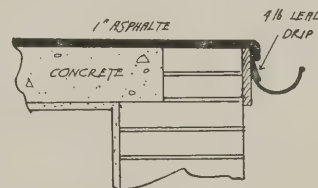


FIG 2

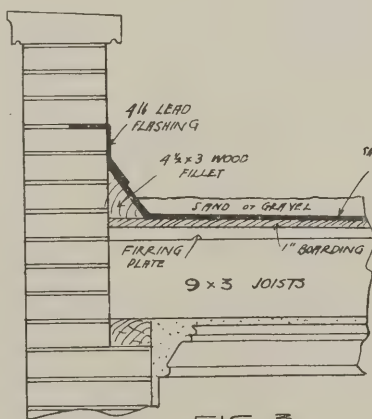


FIG 3

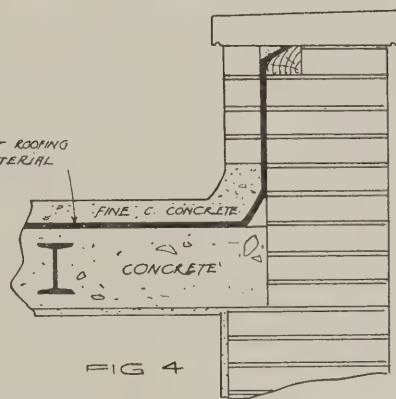


FIG 4

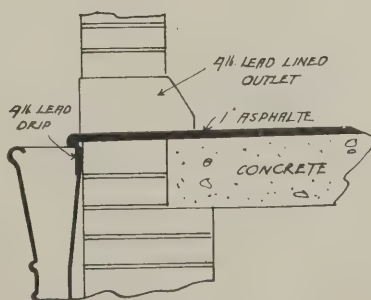


FIG 5

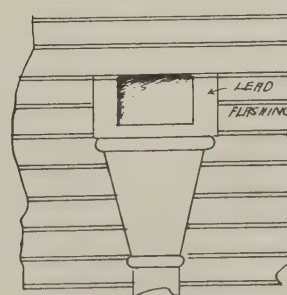


FIG 6



THE ARTHUR HILL MEMORIAL BATHS, READING.
C. B. WILLCOCKS, A.R.I.B.A., ARCHITECT.

tank. The material is taken up the full height of the parapet, with an outer casing of $4\frac{1}{2}$ in. brick in cement. It is then covered with 2 in. of fine cement concrete, finished with granolithic surface.

Figs. 5 and 6 illustrate the formation of outlets to rainwater heads. Where necessary, a gutter may be formed all round the roof on the inside of the parapet. This gutter must be of lead or zinc.

In a concrete roof covered with asphalt or one of the previously mentioned roofing materials, no drips or rolls are required, as they would be in a lead or zinc roof. A fireproof roof is thus obtained, while the materials, being slightly elastic, do not suffer damage from expansion, contraction, vibration, and settlement.

Summarising the different materials used in covering flat roofs by a comparison of the costs, the figures are as follows:

Laid with copper (exclusive of flashings, fillets, etc.), 12s. a sup. yd.

Laid with 6 lb. lead (exclusive of flashings, fillets, etc.), 9s. a sup. yd.

Laid with zinc (exclusive of flashings, fillets, etc.), 7s. 3d. a sup. yd.

Laid with 1 in. asphalt (exclusive of flashings, fillets, etc.), 6s. a sup. yd.

Laid with sheet combination material average 3s. to 4s. a sup. yd.

THE ARTHUR HILL MEMORIAL BATHS, READING.

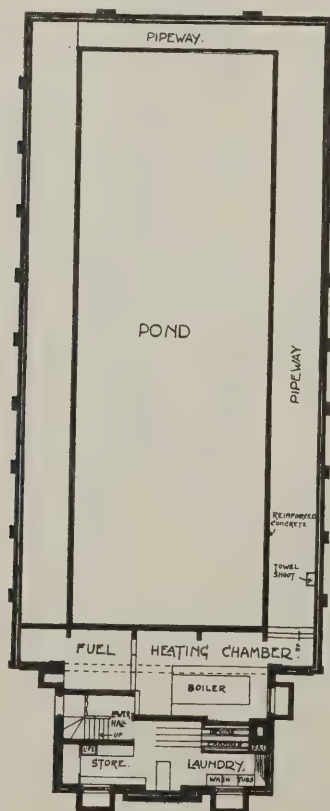
These baths, recently completed in Reading, have been built as a memorial to the late Arthur Hill, J.P., of Earley Court, Mayor of the borough 1883-7. The donors, his children, invited three architects to submit plans in competition, and those of Mr. Conrad B. Willcocks, A.R.I.B.A., of 11, Friar Street, Reading, were chosen.

The site, which was presented to the

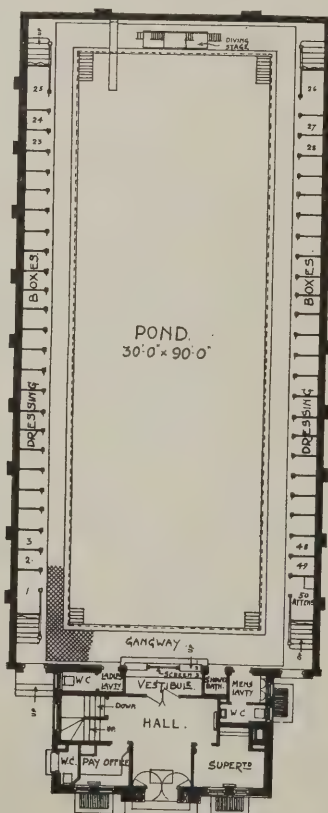
pets, chimneys, trap-door openings, etc., a $4\frac{1}{2}$ in. by 3 in. wood angle fillet is fixed. This now forms the surface for the roofing material, which receives a 4-lb. lead cover flashing at all parapets, etc. (A cement flashing is sometimes used for cheapness, but this is liable to crack and break away.)

The material is then covered with 2 in. of sand or gravel.

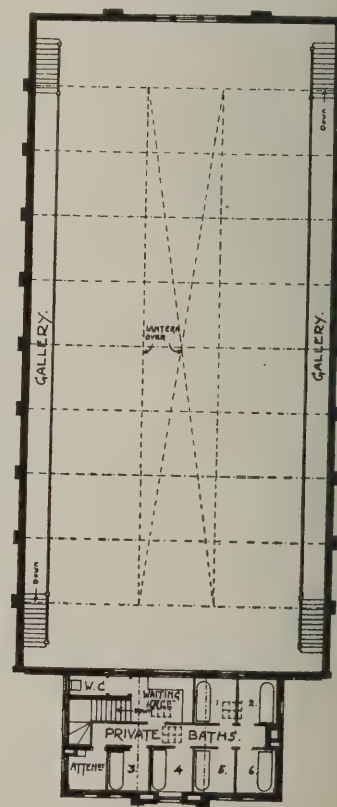
Fig. 4 illustrates the construction of a roof to be adopted as a rainwater tank. The construction in this case must be in concrete as before, 6 in. to 9 in. thick, according to the required capacity of the



BASEMENT PLAN.



GROUND FLOOR PLAN.



FIRST FLOOR PLAN.

SCALE.
0 10 20 30 40 50 60 70 80 FEET

own by Dr. Jamieson B. Hurry, J.P., was a building plot of 50 ft. frontage, on the north side of King's Road. It had a plot of about 5 ft. 6 in. from front to back, and consisted largely of made ground. For this reason the swimming pond was built at a rather lower level than the entrance hall and constructed of reinforced concrete, being designed as a large box resting on the made ground. The design is interesting as an example of a small but complete establishment, built on a restricted site, to harmonise with its surroundings.

The baths contain the following accommodation: On the ground floor, entrance hall, swimming pond hall, ticket office, and superintendent's room; on the first floor, waiting hall, six private slipper baths, and attendant's room; in the basement, small establishment laundry and heating chamber. The building is constructed of brick, with floors, gangways, and stairs of reinforced concrete, and the roofs are covered over the front portion with ordinary tiles, and over the pond hall with Calmon asbestos tiles. The entrance hall is finished with a terrazzo floor, green tile skirting, and deal skeleton panelling enamelled white with Paripan, with plastered discoloured panels. The entrance doors are of English oak and all the door furniture is of bronze.

The pond hall opens direct off the entrance hall, a wind screen, measuring 101 ft. by 48 ft. 7 in., being provided to prevent draught. The pond has a water area of 90 ft. by 30 ft., and varies in depth from 3 ft. 3 in. to 6 ft. 3 in. On either side of the pond are twenty-five dressing boxes with galleries over. A shower-bath is provided and lavatories for ladies and gentlemen, as the bath is used on certain days for family bathing. Emergency exits are provided for use on gala days.

The gangways and shell of the pond are of reinforced concrete, the sides of the pond being 6 in. thick, the cement rendered and covered with white glazed tiles. The floor of the pond is lined with white terrazzo, with dark green guide lines. A scum channel is fixed across the deep end and a sparge pipe across the shallow end to freshen up the surface of the water. On the kerb along one side a scale is painted for measuring the lengths of plunges. In each corner are teak steps, and at the deep end are fixed a spring-board and a diving stage in three heights, 3, 6, and 9 ft.

The gangways are paved with red-ribbed non-slipping tiles, and the dressing boxes with granolithic paving. The walls are faced with selected red bricks above a reddish brown glazed brick dado. The dressing boxes are of deal, stained brown with Carbolineum, and the ceiling is lined with Poilite asbestos sheets. Lighting is by means of a continuous lantern with alternate vertical lights arranged to open, the sides of the lantern being glazed with sheet glass, and the top with rough cast glass in Simplex glazing. Artificial lighting is by means of incandescent gas controlled from the pay office.

On the first floor the private slipper baths have match-board partitions and walls enamelled with Paripan, the floor being of granolithic. The baths are of heavy glazed fireclay, with valves under the control of the attendant in the corridor. In the basement the establishment laundry is fitted with a heated drying chamber and three glazed fireclay wash-tubs. Adjoining the laundry is the heating chamber, containing the Cornish boiler, which supplies the necessary steam for heating the swimming pond, hot water for the slipper baths, and the radiators in the entrance hall, and pipes in the pond



THE ARTHUR HILL MEMORIAL BATHS, READING: VIEW OF SWIMMING POND.

C. B. WILLCOCKS, A.R.I.B.A., ARCHITECT.

hall, etc. The pond is heated by means of a circulator, water being drawn out of the deep end and by the injection of steam, which mixes with the water, forced at a higher temperature into the shallow end. A calorifier fixed in the heating chamber supplies the hot water for the slipper baths.

The main frontage is designed in a simple Georgian manner, being carried out in 2-in. red multi-coloured Daneshill bricks with rusticated quoins, and St. Aldhelm box ground Bath stone dressings, the roof being covered with Brewerton's "Old English" tiles. The building was designed and erected under the supervision of the architect. Mr. E. P. Wells designed the reinforced concrete work. The general contractor was Mr. Robert Curtis, of Reading.

Among the sub-contractors not already mentioned were: Messrs. Stuart's Granolithic Co., Ltd., who carried out the reinforced concrete; Messrs. S. and E. Collier, Ltd., glazed bricks; Messrs. The Leeds Fireclay Co., Ltd., white glazed and red ribbed tiles; Messrs. Art Pavements and Decorations, Ltd., terrazzo; Messrs. The Stourbridge Glazed Brick and Fireclay Co., Ltd., slipper baths and wash-tubs; Messrs. David Rowell and Co., steel trusses and ventilating apparatus; Mr. James Gibbons, lantern gearing and door furniture; Mr. Robert Adams, spring hinges.

A detail drawing of the reinforced concrete construction is reproduced on pages 166 and 167 of this issue.

CONCRETE ROADS.

Concrete paving material both for city streets and country highways has been developed rapidly in the United States in the last few years, and has proved to be a durable and economical means of solving traffic problems. Various types of construction have been developed, chief among which are the single course, two course, and reinforced pavements. The use of concrete as a material for the construction of rural roads promises to develop into the

standard type for that class of construction work. It has already been used in a majority of the States in the Union, and it has met satisfactorily the demands of traffic, both of the old horse-drawn type and the newer motor-propelled type. The road situation in America is such that far greater sums of money are expended annually on road repair than on the construction of new roads. Even under adverse circumstances, when any type of road construction is liable to be improperly built, concrete has shown a remarkable durability and has given excellent road service.

A second phase of the road situation is the necessity of road types that will withstand motor-car traffic. At the present time there is already an enormous number of automobiles in use on country highways. In the near future the motor lorry will undoubtedly come into large use as the means of transporting the country's agricultural products to the city. This will further necessitate a type of road construction that will withstand the ravages of motor-propelled vehicles.

Increased repair charges are in close proportion to the increased number of automobiles in use in the State. Figures show conclusively that a more permanent type of construction is necessary. Even the later types of bituminous and oil-bound macadam that were built after the European method of construction, in the hope of finding a type less expensive to maintain, were found to reduce the cost of road repair but little, and it came to be conceded by engineers generally in the various counties and States, that brick or wood block paving similar to city construction was a necessity for rural roads.

In the meantime, however, the road commissioners of Wayne County, Michigan, found a satisfactory solution of the road problem by means of concrete, built in much the same manner that the concrete pavements under brick and granite blocks are built in the cities. These pavements have attracted the attention of road builders all over the United States and Canada. Almost daily road officials inspect the pavements and return home satisfied that they have seen the solution of the

American road problem. European engineers visiting America are astonished at the permanency, and at the low cost of maintenance of the roads.

The initial cost of concrete in Wayne County is about \$10,000 (roughly £2,060) a mile for a sixteen-foot roadway seven inches in thickness. This is somewhat higher than the cost in other localities where sand and gravel are easily obtainable. The cost of maintenance of these roads is nominal, averaging less than \$10 per mile per year, and the larger part of this cost of maintenance is spent in rounding up the gravelled shoulders of the road and cleaning out the ditches. On the other hand, the cost of properly-built macadam or gravel, hitherto the prevailing types, ranges from five to eight thousand dollars per mile. And the cost of maintenance, particularly in the eastern States, where the automobile traffic is heavy, ranges from eight hundred to two thousand dollars per mile per year. In addition, it is said, the life of macadam is about five years, while concrete may be safely counted upon to last at least twenty years. As these pavements are now built they are similar in construction to the concrete foundations used under the heavier types of city pavements, and no doubt when their period of service as a pavement proper has ended, they can still be utilised as foundation material under brick, and still give service for an additional twenty years.

NEWS ITEMS.

Change of Address.

Messrs. Geoffrey Lucas, F.R.I.B.A., and Arthur Lodge, A.R.I.B.A., architects, have removed from 14, Hart Street to chambers at 13, Gray's Inn Square, W.C. Telephone, 857 Holborn.

"Pudlo."

The reservoir at the King's Sanatorium, Midhurst, has been specified to be treated with "Pudlo," the powder which renders cement waterproof (made at King's Lynn by Messrs. Kerner-Greenwood and Co.). The Letters Patent Insurance Co., Ltd., have granted a policy to Messrs. Kerner-Greenwood in respect of "Pudlo." The policy covers legal action in the event of anyone infringing the patent.

The Regilding Work at St. Paul's.

Contrary to general expectation, the ball supporting the cross of St. Paul's Cathedral is not included in the regilding scheme which is now being carried into effect. Only the cross surmounting the ball and the two finials on the towers on each side of the façade are to be regilded. The ball surmounting the dome, as well as the cross, came from the copper mills at Mitcham, in Surrey, which, with other copper mills in that district, have long been extinct.

Proposed Statue to Roger Bacon.

Lord Curzon has become hon. president, Sir Archibald Geikie, K.C.B., chairman, and Lieutenant-Colonel H. W. L. Hime, hon. secretary of an influential committee which has been formed to arrange for the commemoration in 1914 of the seventh centenary of Roger Bacon's birth. It is proposed to erect a statue (by Mr. Hope Pinker) in his honour in the Natural History Museum at Oxford and to raise a fund for the publication of his works. The committee proposes to hold a Roger Bacon Commemoration at Oxford in July, 1914, when the statue will be unveiled.

PROJECTED NEW WORKS.

Town Hall for Gillingham, Kent.

The Gillingham Town Council are considering the erection of a Town Hall at an estimated cost of £20,000.

St. Giles's, Cripplegate, to be Restored.

St. Giles's, Cripplegate, one of the few churches that escaped the Great Fire, is to be refaced with stone.

Middlesex Sanatorium Scheme.

The Middlesex County Council have decided to acquire a site and erect a sanatorium for the reception of cases of consumption.

New Infirmary at Barnet.

A new infirmary to contain 192 beds, and costing about £15,000, is to be built at Barnet.

New Offices for Metropolitan Water Board.

The Metropolitan Water Board have decided to erect new central offices in Rosebery Avenue at an estimated cost of £115,000.

Belfast Harbour Development.

The Belfast Harbour Commissioners have approved a proposal to construct, at a cost of £75,869, a new wharf for the construction and fitting out of vessels of the largest size.

New Concert Hall for Brighton.

The Brighton Council have approved a scheme for erecting a concert hall at the Aquarium, subject to the removal of the condition that the building shall not be higher than the footpath of Marine Parade.

New Hampshire Asylum.

Plans have been sanctioned by the Secretary of State for the erection of a new asylum on a site known as Park Prewett, near Basingstoke. The buildings will provide accommodation for 1,600 patients, and are estimated to cost £355,000.

"Tivoli" to be Rebuilt.

The Tivoli Music Hall is to be rebuilt in connection with the Strand widening scheme, and it is expected that by the late spring of next year the work will be completed. The work is estimated to cost nearly £25,000.

Proposed Extension of Birmingham Municipal Schools.

The Education Committee of the Birmingham City Council have recommended the extension of the Municipal Technical School, in Suffolk Street, at an estimated cost of £105,000.

New Public Hall, Glasgow.

The Glasgow Corporation have approved the erection of a new public hall in Bothwell Street, to give seating accommodation for 15,000 people and standing room for between 25,000 and 30,000. The estimated cost of the building, exclusive of internal fittings, is between £40,000 and £50,000.

South Kensington Museum Extension.

Owing to the great development in the work of the entomological section of the Natural History Museum at South Kensington, the accommodation for the proper arrangement of the collections is now exhausted, and the Trustees are considering a plan for a considerable extension westward of the main building.

Swimming Baths, Pudsey.

Pudsey Town Council have unanimously adopted a scheme for the erection of swimming baths, slipper baths, fire brigade

superintendent's and manager's house, fire brigade station and surveyor's office on land owned by the Corporation, at cost not exceeding £3,000.

Promenade Extension, Blackpool.

A scheme is being considered for the extension of the promenade at Blackpool to the southerly boundary of the borough at an estimated cost of £66,250. It includes a new sea wall from the grass plot carriage drive, and footpath, and a road 50 ft. wide running parallel with the promenade.

Improvements, Barrow.

Mr. A. W. Brightmore, D.Sc., M.I.C.E., an inspector of the Local Government Board, has held an inquiry into several applications by the Barrow Town Council to borrow the sums of £15,900, for the erection of public baths in Abbey Road £5,500, for the further laying out of the public park; £850 for works of sewerage on Barrow Island, £3,422 for the extension of the Biggar Bank Recreation Ground, Walney, and the construction of a new roadway; and sums amounting to £7,212 for the widening and improvement of Salisbury Road and Fairfield Lane.

Proposed Widening of Cheapside.

The Improvements Committee of the London County Council have recommended the authorisation of a contribution of £77,500 towards the widening of St. Martin's-le-Grand and Gresham Street, the site of the old General Post Office and of Cheapside, and of Cheapside at Sweeting's Corner. This improvement is proposed by the City Corporation in connection with the demolition of the old General Post Office buildings, and in view of the increased traffic which will be created by the new St. Paul's Bridge. St. Martin's-le-Grand will be widened to 80 ft., and the portion of Gresham Street adjoining which is 24 ft. to 32 ft wide, to a uniform width of 50 ft. Cheapside at Sweeting's corner will be widened to 95 ft.

LEGAL.

Garden Houses and the Building Act.

Messrs G. Hayward and Co., of Crofton Park, Brockley, were summoned at the Greenwich Police Court for erecting a building behind a house in Tressillia Road, Brockley, without giving notice, required by the Building Act. The defendants contended that notice was not required. The erection was 9 ft. by 12 ft. and was placed in the garden, furnished as a bedroom with two beds.

Mr. Greig, the district surveyor, quote a case in which a wooden structure on wheels, used as a butcher's shop fronting the street, had been held to be a building requiring notice, saying that the Judge expressed the opinion that the wheels had been put on to evade the Act.

Mr. Hayward said he understood that the building was erected for a person who was ill, and that it would be used for a short time only—eighteen months. The wheels were not an afterthought.

Mr. Chapman said that, with some reluctance, he came to the conclusion that notice ought to have been given. He thought the building was intended for use as a dwelling-house and was not exempt. The use of wheels was immaterial. The defendants had acted in good faith, and probably in ninety-nine cases out of a hundred they would not have had to give notice. He would not record a conviction but the defendants must pay 25s. costs.

THE ARCHITECTS' & BUILDERS' JOURNAL.

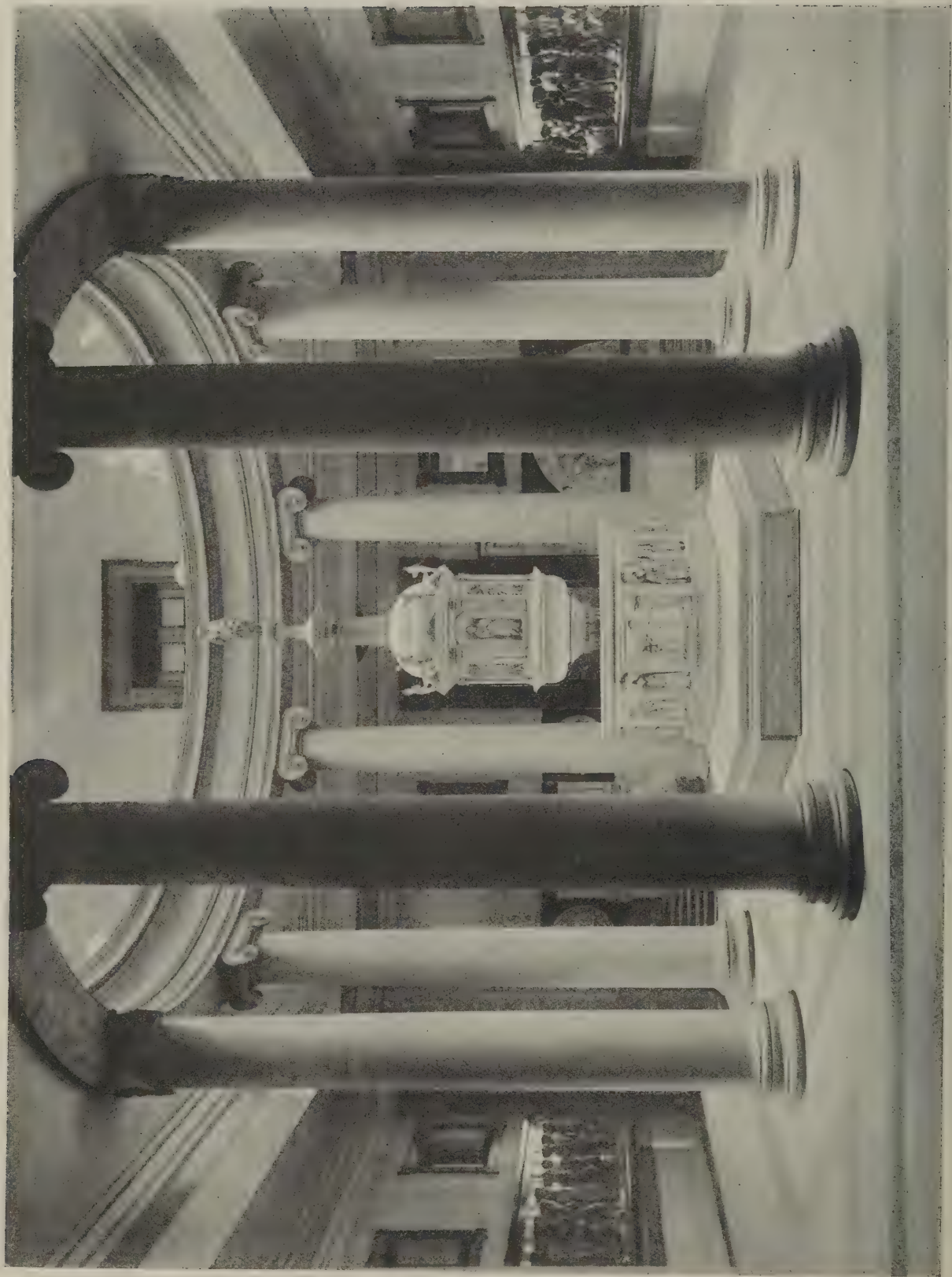
Wednesday, August 20, 1913.

Volume XXXVIII. No. 971.

No. 47.



(From Piranesi.)



HARRIS FREE LIBRARY AND MUSEUM, PRESTON: THE CENTRAL HALL. JAMES HIBBERT, ARCHITECT.

(See page 170.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

AUGUST 20, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 38 No. 971.

The Human Use of Blinkers.

WE are all of us acquainted with Ruskin's far-fetched ethical contention—our aforetime illumination from his Seven Lamps is somewhat dimmed, but it must have been under the rays of that singular Lamp of Sacrifice—that no labour should be spared, whether a thing is visible or not. To leave unenriched a portion of a building that can never possibly be seen, appears to be a very venial sin of omission—in fact, it might be accounted a direct virtue in the saving of one's client's pocket; but there has grown upon us a habit which can hardly be defended on any grounds, ethical or otherwise. This is the knack of mentally blotting out from view undesirable objects which are manifestly evident. We clap blinkers on our hackney cab-horses to keep their eyes glued on the road and from straying to look at casual passing things; even so do we voluntarily wear blinkers to prevent an emotional shy at every end and turn. This habit has become an instinct with us, so that we hardly notice it—a humble but familiar instance will illustrate its prevalence. In a genteel suburb of semi-detached houses you may sometimes see a vacant plot which has not yet received its load of bricks and mortar; it is unfenced, and if it happens on a corner site a path will probably make a short cut across it to the nearest tram. Each of the neighbouring built houses and its garden in front is neatness itself—its paint is scrubbed, its doorstep whitened, its brass glistens, and its windows shine. The grass plot is meticulously mown and purged of weeds, the flowers are tended scrupulously—it must be a hazardous hunting ground for slugs and earwigs—and the privet hedge is clipped to a straight edge. Round the corner of this trim garden lies the vacant plot; this is used conveniently by the suburban amateur gardener as a rubbish heap—here he throws his grass shavings, his ivy clippings, his decayed wall-flowers, and the exuberant growth he is careful to prune away from all his plants; a few old bones and fishes' heads appear, dragged there by suburban dogs, who soon tire of their mouldiness; an old boot is sure to be flung by some tramp who has cadged a better from one of the houses; nettles, burdocks, and other rank weeds that always hover round human habitations spring up unbidden; after a winter's rain the plot is a festering quagmire, across which every morning the suburban householder darts in varnished boots to catch his tram, and on which his glance rests if he chances to look beyond the narrow bounds of his front garden; here also his children play when they can escape from the tight hands of their formal mothers. Yet he is blind or rather blinkered to the incongruity.

Having passed a quagmire on his way to the office, it is hardly probable that he will notice other things. The maze of overhead wires held up by ugly standards, through which one must peer to look at the town hall; his own office building, which must only be seen in front elevation—the side of white glazed brick, and bearing no articulation to the front; and, lastly, the office lift, entered from a marble vestibule through bronze doors, but which, on its way up, passes through

a dirty shaft, its rough plaster scrawled with pencil marks.

These are a few stray instances passed by the average man on the way into business, and they could be multiplied almost indefinitely. Who is not familiar with the ugly railway approach to a town, which threads its way through rows of backyards where the casual glance of the passenger occasionally surprises some homely household function and beholds some strange garments hung out to dry? The station at length is reached across a wilderness of sidings dotted with smoky sheds and heaps of coal; and if its front gives on to a fine square, we wink at this dreary approach; even a town like Chester, which has made the very utmost of the inheritance left it by the past—which has preserved itself with the care of an elderly military gentleman who, rather than attempt to hide up the ravages of time and service, makes direct social capital out of his neat and well-groomed antiquity—a town which has gone to the extent of pulling down a white glazed building of sanitary ware, which by its blatant modernity was threatening to ruin one of its Roman cross roads—this same Chester is content to greet the Americans she lives on with one of the scurviest back views ever offered to a welcome stranger. It trusts the American will be so blinkered reading his guide-book that he will not notice it.

In our interiors we find the same facility; how many people, with good taste in pictures and furniture, are content to live in ugly houses; they can set their beautiful things in a room with a hideous plaster ceiling-rose and mantelpiece of "corned-beef" imitation marble or flimsy new art woodwork. And is it not a common practice to accept as inevitable a piano, of whatever degree of unshapeliness and varnished obtrusiveness?

In the country an unsightly erection—a glaring red fever hospital, the chimney shaft of a refuse destructor, or an outrageous advertisement—is occasionally resented; we can generally see when a landscape is spoiled, but the faculty for blinking has dimmed our discrimination as soon as we enter the town. Perhaps it is an inheritance from the industrial revolution, what has been called "the paleotechnic age," when universal ugliness without and within was looked upon as a sign of commercial progress. This fallacy is now exploded, but the tolerant attitude towards ugliness in patches—"You must have trapezes and overhead wires, a railway must spoil the country side and look on to backyards, a side street must be glazed like a wash-basin"—this should be fought against. To ignore these things cannot but dull the fineness of our critical perceptions, and one can see no serious prospect of improvement in the general appearance of our towns and houses until all visible blots are regarded unblinkingly as blots and erased away. The restraint of advertising is one sign of opening the eyes—but advertisements, in spite of their evil reputation, are not by any means the worst urban offenders; there are many recognised disfigurements practised by the most reputable public authorities and private individuals which should be faced with intrepidity.

A.

Statues in the Parks.

IT having been proposed to put up a memorial to Captain Scott in one of the London parks, a vigorous protest against the project has been raised. As one statue seems to lead to another, it is feared by a correspondent that in course of time the parks will be by this means "filched away" a few feet at a time, and that ultimately our parks must cease to deserve the name: they will become instead, we may infer, so many open-air chambers of horror, "bit after bit of verdure being made to disappear." Such absurd exaggerations can effect no good purpose; yet it must be acknowledged that the sort of statues that are commonly thought good enough for parks, and the foolish positions assigned to them, may well create a nervous apprehension of the worst consequences. Hysterical protest, however, can only excite ridicule. While there is not the slightest ground for imagining that in course of time the parks will be treeless, grassless, and altogether graceless, by reason of the bronze and stone images lavishly dumped upon them, it must be conceded that the kind of statuary to which we have become accustomed in this country is sufficiently deplorable to justify almost any kind of protest. On the other hand, it must not be forgotten (although there is only too much reason for such obliviousness) that good statuary, judiciously disposed, is not merely tolerable, but is a most interesting addition to the amenities of such a purely formal lay-out as that of a town park must necessarily be.

Demarcation Disputes.

A VERY serious interruption of work has occurred in Liverpool in consequence of one of those perennial demarcation disputes which are among the most annoying incidents in a precarious industry. Some few weeks ago the bricklayers engaged on the Midland Adelphi Hotel struck work because the plasterers were fixing "breeze" or concrete slabs, the bricklayers claiming this work for themselves. The employers, who obviously have nothing to do with the quarrel, although they are the chief sufferers from it, claim that they have been made the victims of a breach of faith, since the bricklayers have "downed tools," in spite of their working agreement. It is a very curious though unhappily by no means a unique situation. The bricklayers, in striking against the plasterers, hit their employers, against whom there is no grievance. For their part, the employers had no remedy save one. They were powerless to intervene in the dispute; and the only means of bringing the men to their senses was to proclaim a general lock-out of bricklayers, and this they have done, greatly to their own embarrassment. Now the bricklayers have a further grievance: they are asking why they are locked out while the plasterers, whom they regard as the cause of all the trouble, are allowed to remain at work. The answer to this is, of course, that the plasterers did not strike and the bricklayers did. Ultimately, no doubt, the point in dispute, as to whether or not the plasterers are entitled on principle, as they seem to be on precedent, to do this kind of constructional work, will be settled by arbitration, as many similar disputes between trades have been; but in the meantime the delay and waste are exasperating in the extreme.

A Conference on Main Roads.

IN accordance with the assurances given by the Prime Minister to the deputations which waited upon him a month or so ago to urge the importance of dealing thoroughly and promptly with the road problem, the Local Government Board have issued a circular announcing that Mr. Burns has consented to preside at a conference of local authorities and others interested in the improvement of arterial road communication in Greater London. It is proposed that the conference should take place in

the autumn, at a date that cannot for the moment be precisely specified; date, time, and place being left for announcement in a further circular. Local authorities (each to be represented by not more than two persons) are invited to take part in the conference, but there are no particulars as to the other elements of its composition. No doubt the President of the Local Government Board is fully awake to the necessity of introducing men who are competent to give expert advice on the many and complicated issues involved, and it should be quite unnecessary to point out the supreme importance of securing an adequate complement of town-planning and architectural representatives. Indeed, the architectural interests at stake could hardly be exaggerated; but the more purely utilitarian issues—questions of control, of finance, of materials and methods of construction—must necessarily occupy so much attention that there is some danger of the architectural amenities getting less than their fair share—a contingency that might easily be fraught with the most unfortunate results. The re-planning of the arterial roads will involve an enormous amount of building, and we are very anxious that it should be of the right kind: for, in truth, this conference seems to foreshadow by far the largest opportunity for town-planning that this country has as yet enjoyed, and the success or failure of the movement hangs in the balance. It is pre-eminently an occasion for courage, or, as they say in the medical profession, for heroic treatment; and any paltering, either on the part of the Imperial and local authorities, or on the part of the professions, would be lamentable beyond words. The professions, indeed, have made an excellent beginning, since it is on their initiative that the subject is being taken up; but they have much arduous and strenuous work to do in shaping and directing the movement to the noble issues for which it offers unparalleled possibilities.

The new Board of Trade Offices.

THE Office of Works is inviting architects to submit preliminary sketch designs in competition for the new offices of the Board of Trade to be erected on a site in Whitehall Gardens. The whole of the houses in Whitehall Gardens have been acquired up to the grounds of Montagu House, the residence of the Duke of Buccleuch, and this space and the site of the present premises will be occupied by the new offices. These buildings will have a frontage to the Embankment of about 350 ft., another to the Horse Guards Parade of 300 ft., and one to Montagu House of 208 ft. A space will be left between the new building and Montagu House for a roadway to the Embankment. There is at present no roadway from Whitehall to the Embankment for some distance on either side of the proposed road. The building line will be a continuation of Whitehall Court, and this will leave a vacant space of about 150 ft. deep, which will probably be laid out as gardens. The whole of the vacant land in front of the houses in Whitehall Gardens is to be built upon, and nearly one-third of the square in front of the present offices will also be occupied. The new offices will not have any frontage to Whitehall, as it is not intended to interfere either with Gwydyr House or the Royal United Services Institution. It is proposed first to demolish the houses which have been acquired for the extension of the offices, and to build on the site offices for departments already in occupation of the adjoining premises. When the whole scheme has been carried out it is expected that the great majority of the eighteen or twenty departments of the Board of Trade, now scattered in many parts of London, will be housed under one roof. It is thought probable that the building will be of Portland stone, and will consist of four or five storeys; but these points have yet to be decided.

THE HARRIS FREE LIBRARY AND MUSEUM, PRESTON.

[Specially Contributed.]

It has generally been considered until recent years that the last great building of the Néo-Grec movement in England was St. George's Hall, Liverpool, and that the whole movement terminated with the first half of the nineteenth century. This, however, is a mistake, for the Harris Free Library and Museum—one of the finest athenæums in Europe—was not built until some forty years later. The exact date of its erection is 1882-1894, which brings the great classical tradition right down to our own times.

The Harris Free Library and Museum is a lasting memorial of a local benefactor—whose name it bears—and is at the same time a conspicuous monument of architectural genius seeking expression and embodiment in those forms and methods which are indissolubly connected with the greatest architectural and sculptural achievement of history. The architect, Mr. James Hibbert—a local man little known in London—was thoroughly imbued with the spirit of ancient Greece when that country had reached the height of its civilisation and ideals.

Influenced by a close study of such works as Penrose and Inwood, Stuart and Revett, the chief features of the building are simplicity and symmetry of plan, truthfulness of expression, and great refinement of detail. In its singleness of purpose and purity of design, and in its application of Greek principles and forms to modern usages, it is a perfect example of Néo-Grec architecture. In comparing it with cognate works in this country, such as the Taylorian Institute at Oxford, and St. George's Hall, Liverpool, its characteristics of unity and purity are at once apparent.

As a result of the Ionian influence, Roman elements have been clearly avoided. On the other hand, Greek forms and Greek feeling have been assiduously cultivated. Moreover, there is a notable absence of that cold formalism which is characteristic of such reproductions of classic art as are to be found in smaller work throughout the country.

The choice of the site was particularly fortunate. It

is one of the most elevated in Preston, rectangular in form, well exposed, and slightly sloping. Mr. Hibbert availed himself of these advantages to the full, and the building he designed is of a form suitably fitted to crown an eminence. The square massive attic, a splendid example of the principle of foreshortening, is a conspicuous feature for miles around, and dominates with ease the more pretentious modern buildings close at hand.

The Harris Free Library and Museum shows admirably the adaptability of the spirit of Greek design to modern work. The supposed difficulty of fenestration disappears in Hibbert's hands. Elmes, in his design for St. George's Hall, carefully screened his principal range of windows by a close colonnade of pilasters, but in the Harris Free Library and Museum window treatment forms a very conspicuous and interesting feature of the design. The arrangement of windows on the principal floor is probably unique, and it is certainly very successful. The square attic, which serves as a lantern to the central hall, proves that such a superposition is not inharmonious with the spirit of Greek design. It justifies itself by its majestic dignity.

The pediment on the west façade of the building has only two rivals in England—that of St. George's Hall and the more academic one of the British Museum. The sculpture in the tympanum is, however, more realistic than any modern work of similar dimensions. It has historic as well as æsthetic interest. The sculptural composition, illustrative of the most brilliant period of Greek culture, is built up on true architectural lines, and is worthy of the building. When it is remembered that this work was only executed twenty years ago this pediment alone is an extraordinary achievement both for the architect and the sculptor.

An interesting external feature of the building is the inscriptions. First, the dedication "To Literature, Arts, and Sciences"; next a declaration, "On earth there is nothing great but man; in man there is nothing great but mind"; third, a precept, "Reverence in man



HARRIS FREE LIBRARY AND MUSEUM, PRESTON. JAMES HIBBERT, ARCHITECT.

that which is supreme"; and, last, a promise, "The mental riches you may here acquire abide with you always."

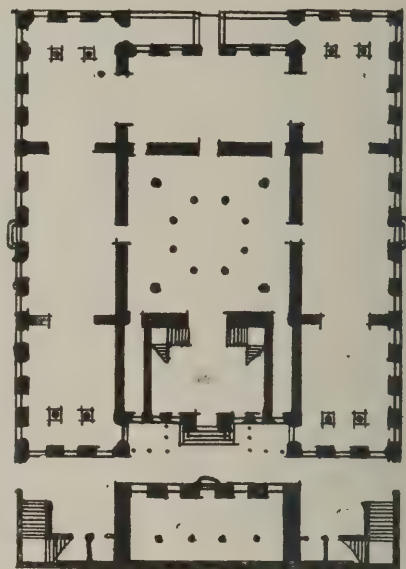
Turning to the interior of the building, one is immediately impressed by the treatment of the central hall, which is open from ground floor to attic roof, and with its various galleries is very imposing. The museum galleries are arranged round the sides of the central hall and staircase—the latter being one of the outstanding features of the interior. The ground floor comprises lending library and newspaper rooms, whilst the principal floor is devoted partly to museum purposes and partly to an art gallery.

Unfortunately Mr. Hibbert was not allowed to complete the building internally as he intended, and it stands at present, to use his own words, "the monument of an unaccomplished purpose." The cost of the building was £75,000.

James Hibbert was born at Preston in 1832. After serving the usual period of articles, he worked at Preston and Manchester. Early in his career he travelled extensively both in this country and in France. He was a man of wide reading and culture, and his knowledge of architecture, sculpture, and painting was as complete as a close study of the best that was available to him could make it. Besides the Harris Free Library, he designed several other buildings of note in Preston and its neighbourhood. The Baptist Chapel, in Fishergate, is one of his earliest, and is well worthy of mention. It is reminiscent of the northern Italian churches, such as the Certosa, near Pavia, and the Church of St. Frances, at Brescia. The low-pitched gable of the façade has the characteristic arcading supporting the raking cornice, and there is a campanile of picturesque and elegant form attached to the building.

Like Cockerell, when required, he occasionally attempted design in the Gothic manner. He was, how-

ever, by predilection a Classicist, and was uncompromising in his fidelity to appropriateness of character in every detail. His reputation stood very high amongst those who knew him, and no one could fail to appreciate the force of his character and the keenness of his



HARRIS FREE LIBRARY AND MUSEUM, PRESTON:
GROUND FLOOR PLAN.

intelligence, nor the innate taste expressed in the dignity and repose of his buildings. On retiring from active work Mr. Hibbert went to live in the South of England, where he died some ten years ago.

R. STANLEY DIXON.



HARRIS FREE LIBRARY AND MUSEUM, PRESTON: VIEW OF REAR AND SIDE FAÇADES.

JAMES HIBBERT, ARCHITECT.

HERE AND THERE.

UNLESS we be born petrels we should never court the tempest. Sometimes, however, we are drawn into it most unwittingly. At the present moment I find myself exactly in that situation. Last week, in a guileless mood, I wrote something about originality in architectural design, putting forward what seemed a most innocent-looking thesis. Those little suggestions for introducing something into our work that would make it individual appeared to me to have a look of broad sanity about them that might be sure of acceptance by all and sundry. Yet a friend whose taste is unimpeachable and whose knowledge is profound comes down with the lightning and the thunder. All such ideas, he says, are utterly wrong and utterly futile. We have got design on the brain; we talk too much and we criticise too much; we attempt to do something individualistic and we fail completely: whereas all the time the whole good company of the masters of the past stand ready to serve us. My friend is a man of architectural faith, with a deep reverence for the great figures in architecture and decoration. He fears to tread where others rush in unconcernedly, with complete assurance of their own position. Did I not read in some paper or book that doctrine of Professor Lethaby's, to take the tradition of yesterday and to add to it just that something which would make it the tradition of to-morrow? But all such ideas must now be reckoned as heretical, for my friend's theory would seem to be that all the good work has already been done. Every effort at originality is a mistake, because it ends in nothing but badly remembered detail. We take a fine style from the past and we put so much of ourselves into it as our abilities allow; but it is all retrograde work, the final result being bad in exact proportion to our own deviations from the model. If we are seeking to have a room in the Tudor manner, or in the style of Wren, Adam, or Chambers, or if we want a wrought-iron gate in the style of Louis XVI., or a chair in the style of Hepplewhite, then we had best go to the finest models of these periods and duplicate them. We cannot hope to do better work, so why spoil what is already good by intruding our own ideas into scheme or detail?

* * * *

It will be seen from the foregoing that I floundered badly last week. Still, though humble and rather crest-fallen, I am not altogether convinced of the error of my ways. Homer nodded, so why not Wren or Adam or Chambers? Besides, the creed set forth above, while late-bounding us unfortunate beings who arrived so late in the world of architecture and decoration, apparently never had an application before the nineteenth century began to run its course. It goes on the assumption that all the old work is perfect, and that any attempts we may make to improve on it, or to alter it in any way, are bound to be pernicious. The masters must be considered sacrosanct; we must go into their presence cap in hand, and take away only what they are willing to give us. But if to do otherwise is for us an architectural sin, what of Chambers, of Adam, of Wren, of Inigo Jones—of all the whole army of great architects of the past? No, if we would countenance such a theory at all the only logical application is to carry it back to the Greeks, who really were the perfect artists. But to pursue that quest with blind devotion would end in nothing more than another revival. So I still contend that our aim should be not to seek safety in negation by becoming mere copyists and duplicators, but to so fashion our work as to make it in some degree individual. Cockerell and Elmes, though they had the utmost reverence for Greek work, did not give us mere copies of the Athenian temples,

and in so far as the genius of each was able to express itself, so we find delight in studying their buildings.

Nevertheless, I quite recognise that the aim of architectural education and practice should be completely democratic, its object being to secure the greatest good for the greatest number. Thus, to the foregoing defence, I add this qualification—that genius had best be left to its own resources, and that the rank and file are best governed by close rules. We have only to call to mind any street in a little Georgian town and any street in a modern English city to see how decidedly the advantage lies with the former. In the days when the Georgian street was in the making there was a tradition, and architects and craftsmen were working in a regular style, so that we recognise in their street a sense of good proportion and quiet harmony which is quite absent from the fatuous medley of such a thoroughfare as the Strand. But to-day, through the destructive incursions of the revivalists, we are deprived of tradition, and I cannot see that the use of reinforced concrete or any other new material is likely to make a fresh one for us. Hence, we must go self-consciously to the past for inspiration. And while, in my opinion, we should put something individual into our work, let this only be done if it is an improvement, or at least is as good as the model we are altering: and let this individuality confine itself to small matters, leaving the main lines undisturbed. At the bottom of all, too, must be a thorough knowledge of the style we are working in, for the most common and worst faults we see around us arise from imperfect knowledge and misapplication, not from deliberate attempts at improvement.

* * * *

There is perhaps no class of building which is undergoing more change than the council school. Already the central hall type is relegated to the past, and new features are constantly being introduced in accordance with an altered outlook towards methods of education. One of the latest examples is the open-air school which is being built by the West Riding County Council at Highfields, a mining village near Doncaster. This, apparently, is on the lines of the new school at Loose, in Kent, which was recently illustrated in this Journal. All the rooms are grouped around a central open quadrangle, the classroom windows on one side looking out upon this open space. The windows of the rooms are of French casement type, carried down to floor level, and hung to open outwards. It will be interesting to see how this school works in practice. It belongs of course to a type which was experimented with long ago, but the final solution does not yet appear to have been reached.

* * * *

"The Anti-Scrape Society" has done good service in protesting against the growing trade in old houses and their fittings. I regard the transplantation of old work into new houses, in the manner made familiar by wealthy purchasers, as both an injury and a mistake—an injury because it tears out work which is only appropriate in its original setting, and a mistake because the effect of such work in its new surroundings always savours of mere blatant display. At the moment of writing I recall an instance where an interior from an old house attributed to Inigo Jones has been set up in a certain mansion. The room undoubtedly has a fine appearance, due to its intrinsic merits, but in regarding it one cannot escape the feeling that it is no integral part of the house, but merely a show apartment put there to display the astuteness of the purchaser, and the ample supply of money which enabled him to get hold of it.

UBIQUE.

CAMBRIDGE UNIVERSITY SCHOOL OF ARCHITECTURE.

IN June, 1908, the Senate of Cambridge University established an examination in Architecture, and in 1912 a Board of Architectural Studies was created to take charge of it and of the instruction in Architecture. In June, 1913, a revised schedule of the examination was passed by the Senate, and will come into force in June, 1914. The examination in Architectural Studies is open to students of the University for completing their degree. A candidate who has obtained Honours in a part of any Tripos examination or in one section of the Mediæval and Modern Languages Tripos shall be deemed to be qualified for a degree of Bachelor of Arts if he has passed the examination in Architectural Studies and has kept the number of terms required for a degree. Students can, therefore, take up the subject in their second or third year, after having passed one part of any Tripos, and give one or two years to the study of architecture, either with the view to the professional exercise of that art, or otherwise, and on passing the examination in Architectural Studies they will obtain the B.A. degree. In this manner the studies of the University in Mathematics, Classics, History, Natural and Mechanical Sciences, Theology, Modern Languages, and other Tripos subjects can be combined with training in Architecture, to the advantage both of professional and general culture. The Council of the Royal Institute of British Architects will accept the examination as exempting from certain subjects of their Intermediate Examination, so that, while enjoying the advantages of a University education, the architectural student is making progress in his professional career.

For admission to any degree in the University, residence for nine terms is a necessary condition. None of the examinations may be taken until the University Previous Examination or an equivalent has been passed, but it should be noted that this can be done, and, if possible, should be done, before the student comes into residence. Students are divided into (i) Honours Students, who take a Tripos Examination and an Honours Degree, and (ii) Pass Students, who obtain the Ordinary Degree by taking either the General Examination (or a Preliminary Examination in Science) and a Special Examination, or by taking two Special Examinations. The relation of these two classes of students to the Examination in Architectural Studies differs very considerably.

Further particulars may be obtained from the Secretary to the Board. Mr. Edward Bullough, M.A., Gonville and Caius College, Cambridge.

RESTORATION WORK AT ST. PAUL'S.

SOME alarm has recently been created by the presence around the great south-west pier of the dome of St. Paul's of a great quantity of scaffolding. This pier is the most critical part of the building, and on its power to sustain the weight imposed upon it the safety of St. Paul's depends. The scaffolding is explained by the fact that the reinforcing work in the crypt has been practically completed, and the grouting is now to be continued on the floor of the church. Meanwhile experiments are being carried on on the site of the old Post Office, where there is a sandy subsoil very similar to that beneath St. Paul's; and an attempt is being made to see whether a method of pumping in liquid concrete would be successful. As the site is cleared of buildings it will be possible to dig down and see if the results are satisfactory. Till the Committee are satisfied on this point it is impossible to say what work on the fabric will be necessary and

what it will cost. Consequently at present no appeal will be issued to the public. But the funds set aside by the Dean and Chapter for the work are running out and assistance would be welcomed. St. Paul's at the present moment is exciting interest, even among those who are most familiar with it. The pineapples over the two west towers used to look dull and dingy, but now they are bright and flaming in a new coat of gilt. The cross over the dome is also enveloped in scaffolding, for it has been decided to regild the cross, ball, and trusses, and also that part of the small dome which gilded. The work has not been done for forty years and it is hoped that when it is completed it will remain untarnished for at least half a century to come. Some little time ago the story was circulated that the Dean and Chapter intended to illuminate the cross so that at night the flashing sign would be seen from all parts of London. It is satisfactory to learn that no such project is contemplated.



CHIMNEYPiece IN BOARD-ROOM, NEW FEDERAL BUILDING, CLEVELAND, OHIO. ARNOLD W. BRUNNER, ARCHITECT.

CORRESPONDENCE.

*The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.
Correspondents are asked to be brief, and to write on one side only of the paper*

R.I.B.A. Final Model Answers.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—I would like to draw attention to a few of the model answers given in your issue for August 6th which appear to me to be hardly worthy of full marks.

In answer to "3. (a) Explain as simply as possible what is meant by the term 'radius of gyration' in relation to the section of a stanchion,"

Mr. Walgate writes: "The radius of gyration of a stanchion is the distance from the axis of rotation at which, if all the material were congregated, it would offer the same resistance to bending as it does in the section under consideration."

I would like to ask what the "axis of rotation" may have to do with "resistance to bending." Surely in structural mechanics the moment of inertia of a section is purely a geometrical consideration, and should not be confounded with dynamical conceptions; so that for "axis of rotation" the term "neutral axis" should be substituted.

Again, Mr. Walgate defines the modulus of elasticity as (theoretically) the stress which would stretch the material to twice its length or compress it to zero. Surely a much better definition is to quote Hooke's law of $\frac{\text{stress}}{\text{strain}} = \text{constant}$, and then to show that with

proper units $\frac{\text{stress}}{\text{strain}} = E = 30 \times 10^6 \frac{\text{lbs.}}{\text{sq. in.}}$ for steel. This is readily illustrated by the accompanying diagram.

With regard to question 7, "Sketch to a large scale the head of a raking shore, and name the various parts"—the needle as sketched having no taper, I fail to see how any stress is induced into the raking strut.

R. P. MEARS, B.A. (Cantab.), A.M.I.C.E.

Maidenhead.

In reply to the above criticisms Mr. Walgate writes as follows:—

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Mr. Mears complains of my use of the term "axis of rotation" in defining "radius of gyration." "Gyration" is a word which means *circular motion*. The axis of circular motion is called axis of rotation, and if Mr. Mears objects to it he must object to the word gyration in the terminology of structural mechanics.

Mr. Mears, in the second place, recommends, instead of my simple answer to a plain question, a general explanation of elasticity. This is not asked for; usually no marks are given for such matter, and time is precious in an examination.

Mr. Mears fails to see how stress is induced into my raking shore. This is achieved by levering it up or by wedging it up. Both methods are indicated in Diagram No. 6.

C. PERCIVAL WALGATE.

Royal College of Art, S.W.

Fashions and the Competition System.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—May I request a little space in your paper in order to ventilate some of the drawbacks of the already much-abused system of competition? I think it has quite reached the stage when it is practically useless, and the time is ripe for considering what form the new system had better take. Only the other day I noticed

that in a recent competition the second and third prizes were not awarded, as the designs did not come up to a sufficient standard of merit, the first prize being won by an architect whose name has become familiar in the competition world. Now, sirs, why do not architects whose work is of sufficient merit care to take part in competitions? The prizes are invariably won by men whose work is well known and has stood the test of previous competitions. Other architects of repute appear to be all dropping out, and if this state of things is carried to its ultimate conclusion it will result, so to speak, in competitions being simply a family affair. It would be a change to have a competition from which prize-winners were excluded from competing.

Again, competitions do not call forth the variety of taste and treatment and individuality which they are intended to. Some of the designs one sees can be named immediately—before the author's name is read. Further than this, the use of competitions is rendered of still less value owing to the fashion in design, which has an exceedingly deadening effect. The "picturesque" and the "formal" seem to be the two styles nowadays, and each design has to be got out under the rigid laws governing one or the other style. The houses do not have the natural look which the various English styles always had. As to the formal style, the proportions may be correct, but unless the surfaces are broken up with ornament, such a building looks rather like a large box in good proportion. The method of obtaining a symmetrical exterior by means such as I saw in a competition design lately, viz., making the kitchen and the drawing-room wings balance each other, shows to what lengths some people will go. In this case, if I remember rightly, the drawing-room "had to be" about 11 ft. by 30 ft.!

With regard to the conditions, these appear to be taken less and less notice of, and even the stipulated price need not be adhered to, so long as an orthodox design is sent in somewhere about the closing date. As to the garden design, the tennis court is usually arbitrarily placed in the middle of the plot, and the whole garden is sacrificed to it. The lily pond, too, is an indispensable feature, and I have seen it even on high ground. If the garden is specified to be economical, competitors are sure to draw an elaborate one, and make the carriage drive long enough to take all the money allowed for the whole garden.

Competitions seem to have become sheer waste of time and money, their sole benefit being to the winners. Until competitions are a genuine reality they will be no use in themselves. In fact, logically, the next step would be to eliminate the present waste of time and energy by making competitors pay an entrance fee, and have lottery tickets—only the winner to get out drawings, according to the fashion for the time being.

ONLOOKER.

THE ROME SCHOLARSHIPS.

A BRIEF summary of the schemes of competitions for the Scholarships in Architecture, Sculpture, and Decorative Painting at the British School at Rome was given in our last issue. We now publish fuller particulars. The scholarships will be of the value of £200 per annum, and will be ordinarily tenable for three years. Candidates must be British subjects, and less than thirty years of age on July 1st, 1914.

The competitions, which will be conducted by the Faculties of Architecture, Sculpture, and Painting of the British School at Rome, will be in two stages:—A. An open examination. B. A final competition, open to not more than ten candidates in Architecture and four in Sculpture and Painting, selected from those competing in the open examination.

Competitors should notify the Honorary General

Secretary, British School at Rome, 54, Victoria Street, London, S.W., of their intention to compete in the open examination as early as possible, and in any case not later than January 24th, 1914, and with such notification must enclose a certificate of birth or a declaration as to age and nationality, duly attested by two responsible persons.

The subject for the examination in Architecture will be an art gallery situated in the public park of an important provincial town. The building is to have a frontage towards the south of 250 ft. (on which frontage is to be the principal entrance), with a depth of 100 ft., and to consist, on the ground floor, of a central top-lighted hall for sculpture, with side-lighted galleries around it; the first floor to have top-lighted galleries. A lower floor for reserve exhibits and stores may be provided, and the design may include any terrace, steps, and architectural adjuncts thought necessary for the completion of the design. The size given may be exclusive of any architectural projections, such as porticos or other architectural features. The drawings required are: Plans of the two principal floors, front and side elevations, longitudinal and transverse sections—all to a scale of $\frac{1}{8}$ in. to a foot; a detail of an important portion of the front to $\frac{1}{2}$ in. scale; a perspective in which the building shall measure 18 in.

A short descriptive report must accompany the design. The general drawings may be finished in ink or pencil, and the view in any manner at the competitor's discretion.

Each design must bear a motto, and must be accompanied by an envelope enclosing the name of the competitor. Drawings must not be executed as part of a school course, and the competitor must submit a written statement to the effect that this regulation has been complied with, together with a declaration that the work has been done by his own hand. The drawings, together with the above-mentioned documents, must be sent to the Honorary General Secretary, British School at Rome, care of the Secretary, Royal Institute of British Architects, 9, Conduit Street, W., and must reach him on or before January 31st, 1914.

The final competition will be held "en loge" in London, and particulars regarding it will be announced later. The successful candidate in this competition will be recommended for appointment to the Commissioners' Scholarship.

Competitors in the Sculpture examination should submit the following works:—1. A model of a nude figure in the round from the life, half life size, the model to be executed by the competitor. 2. A model in bas relief of a composition representing not less than two figures, to be designed and modelled by the competitor, and to be 2 ft. 6 in. by 1 ft. 6 in. in size. 3. Four drawings from life, two of which must be of the nude figure, one of drapery, and one of hands and feet life size. The drawings must be the work of the competitor and must be on sheets of paper thirty by twenty inches. 4. Some drawings or photographs, or both, of original works which have been designed by the candidate. 5. Not less than two photographs or drawings of designs for decorative purposes with architectural features, the designs to have been the work of the candidate.

The models should be cast in plaster, and, together with the drawings and photographs (which must be unframed and unglazed), addressed to the Honorary General Secretary, British School at Rome, care of James Bourlet and Sons, Ltd., 17, Nassau Street, London, W., and delivered at that address not later than January 31st, 1914. The words "Scholarship in Sculpture" should be clearly marked on the outside of each case. The names and addresses of competitors must be clearly written and attached to each work. Works must be forwarded and will be returned at the candidate's expense.

The final competition will be held in London from April 27th to June 20th, 1914. The subject will con-

sist of a design for a figure, group, or relief (as determined by the Faculty of Sculpture), for a given purpose and to a given scale. Eight weeks will be allowed for the execution of the design, and during that time candidates will be provided with studio accommodation and given an allowance of £2 per week towards the cost of models, etc.

The successful candidate in this competition will be recommended for appointment to the Commissioners' Scholarship.

Competitors in the Decorative Painting examination should submit the following works:—1. Not less than four drawings of the nude figure from the life. 2. One painting of a head and one painting of a figure from the life in oil or tempera. 3. Two figure compositions in colour suitable for wall decoration (not larger than 30 in. by 22 in.). 4. Sketches of designs for decorative purposes, which should include some architectural studies.

The works submitted for the open examination should be addressed to the Honorary General Secretary, British School at Rome, care of Messrs. Chapman Bros., 241, King's Road, Chelsea, London, S.W., and delivered at that address not later than January 31st, 1914. The words "Scholarship in Decorative Painting" should be clearly marked on the outside of each package. The conditions of the final competition are the same as given in the Sculpture competition. The subject will consist of a design for a wall decoration to fill a given space for a given purpose, and to a given scale.

OUR PLATES.

The Harris Free Library and Museum, Preston.

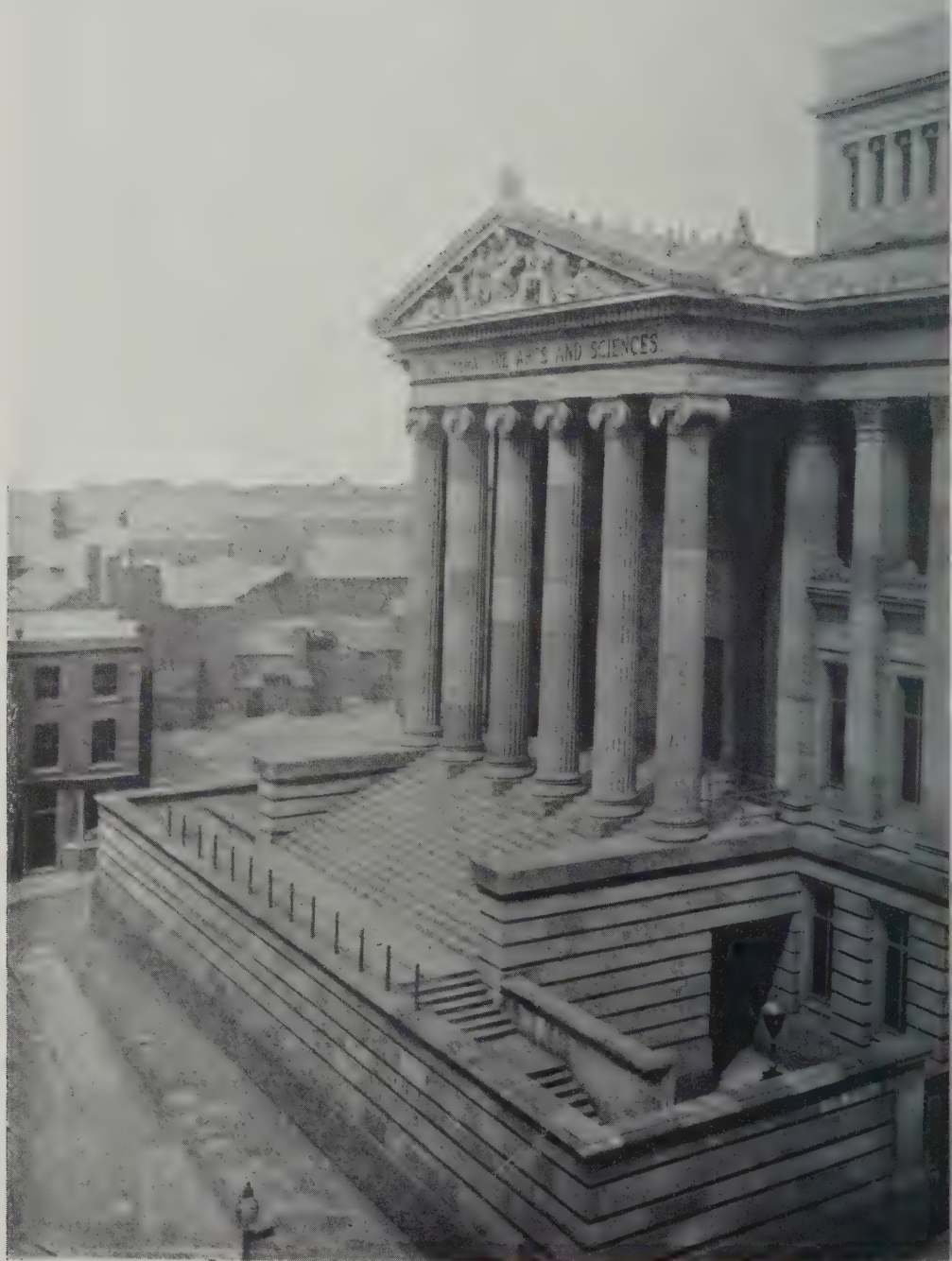
WE illustrate on the Centre Plate in this issue and on the frontispiece and page 187 views of the Harris Free Library and Museum, erected 1882-1894 from the designs of James Hibbert, a local architect, whose ability in the field of Classic design is but little known. The building is thoroughly Neo-Grec in spirit, and brings that great tradition almost down to our own time. A descriptive and appreciative account of the building, with a few biographical particulars of its architect, are given in the article beginning on page 179.

Examples of Sheraton Chairs.

Two admirable specimens of Sheraton chair design are reproduced on page 185. The one with cane seat and back shows the use of the oval form, a decorative detail greatly favoured in this particular style. With but little apparent effort a highly attractive design is achieved, exhibiting the refined lines and contours by which Sheraton chairs are distinguished. The Greek meander on the front rail is very effectively introduced. The lyre-back chair is another charming example of Sheraton design: the flowing line of the back and arms, imitative of the instrument from which it derives its name, being particularly novel and interesting. The legs are tapered and carved in the Sheraton manner, and the seat is upholstered and covered with silk. This example is notable as showing a departure from the usual Sheraton style of decoration and inlay work.

Church of St. Jude-on-the-Hill, Hampstead Garden Suburb.

A working drawing of details of the sanctuary gables of the Church of St. Jude-on-the-Hill, Hampstead Garden Suburb, designed by Mr. E. L. Lutyens, A.R.A., F.R.I.B.A., is reproduced on pages 190, 191 of this issue, and a general view of the building is given on page 189. The church, which occupies a prominent position in the highest part of the neighbourhood, is carried out in brick, with tiled roofs, the spire being covered with lead.

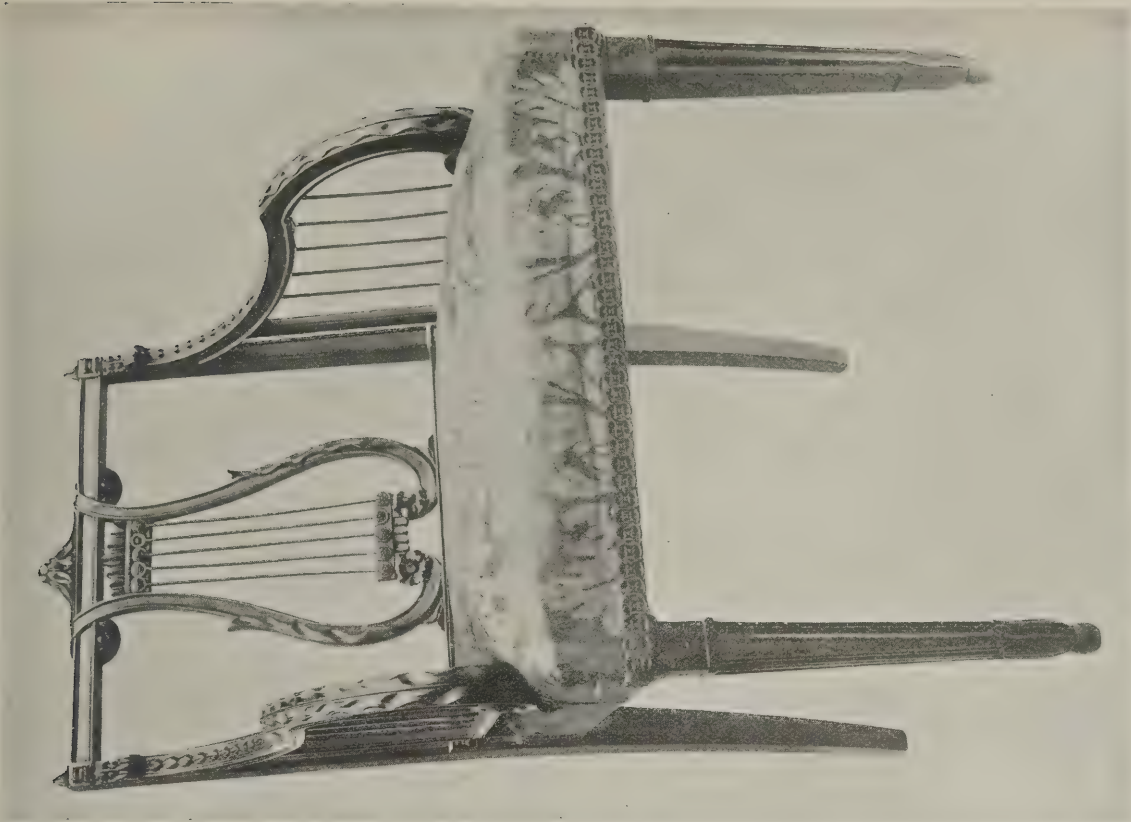


HARRIS FREE LIBRARY AND MUSEUM

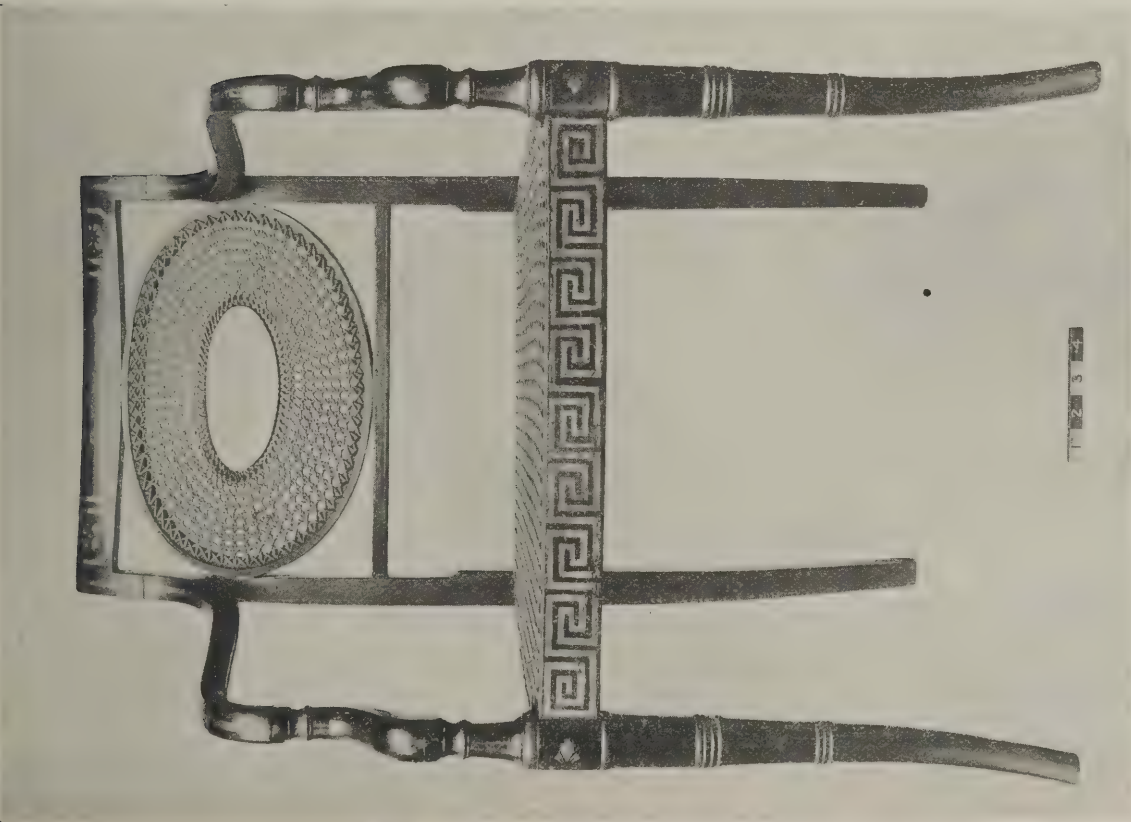


Photo: Arthur Winter.

TON. JAMES HIBBERT, ARCHITECT.



Chair with Lyre Back.



Chair with Cane Seat and Back.

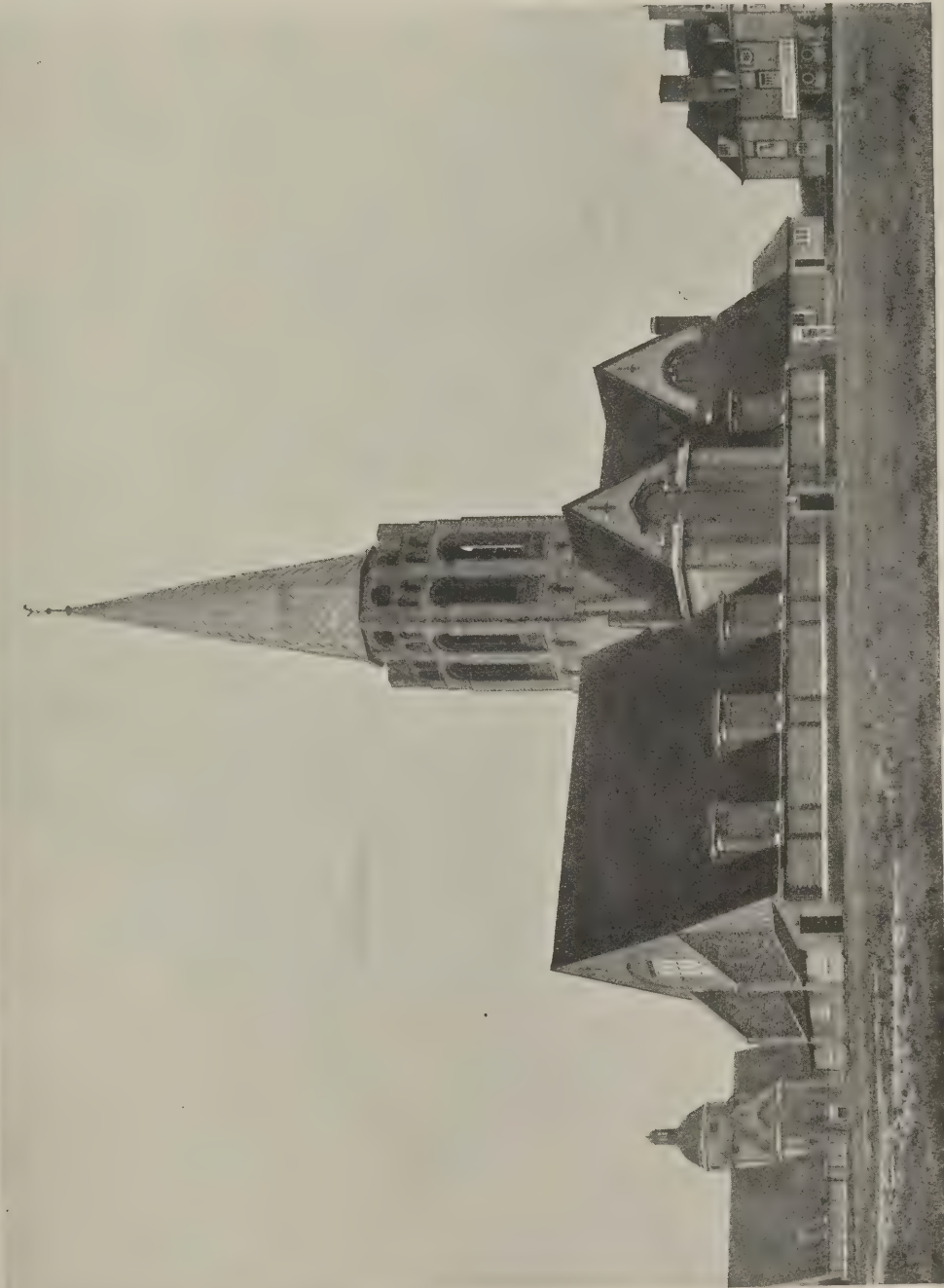
TWO EXAMPLES OF SHERATON CHAIRS.

(See page 184.)



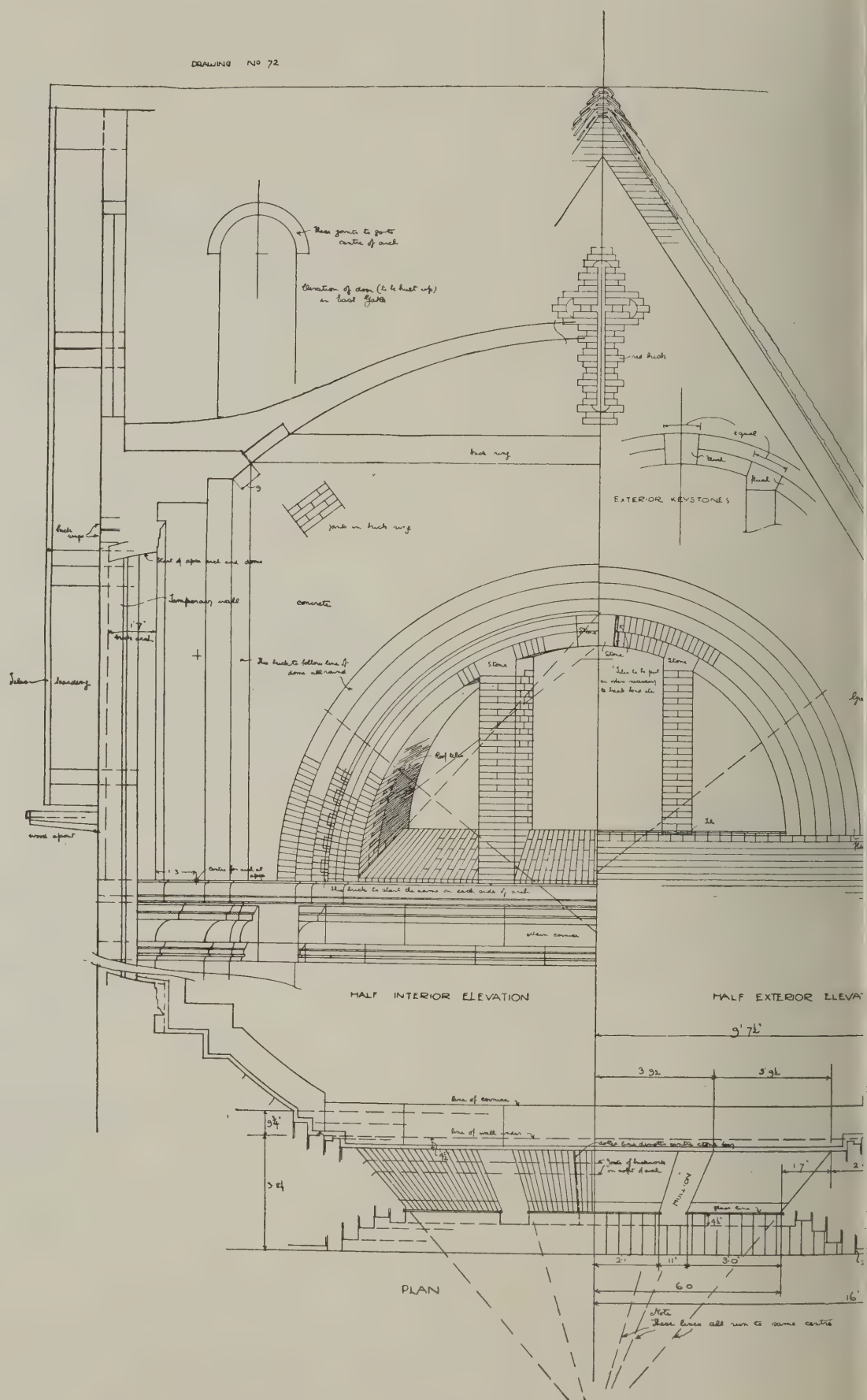
HARRIS FREE LIBRARY AND MUSEUM, PRESTON : INTERIOR OF ATTIC. JAMES HIBBERT, ARCHITECT.

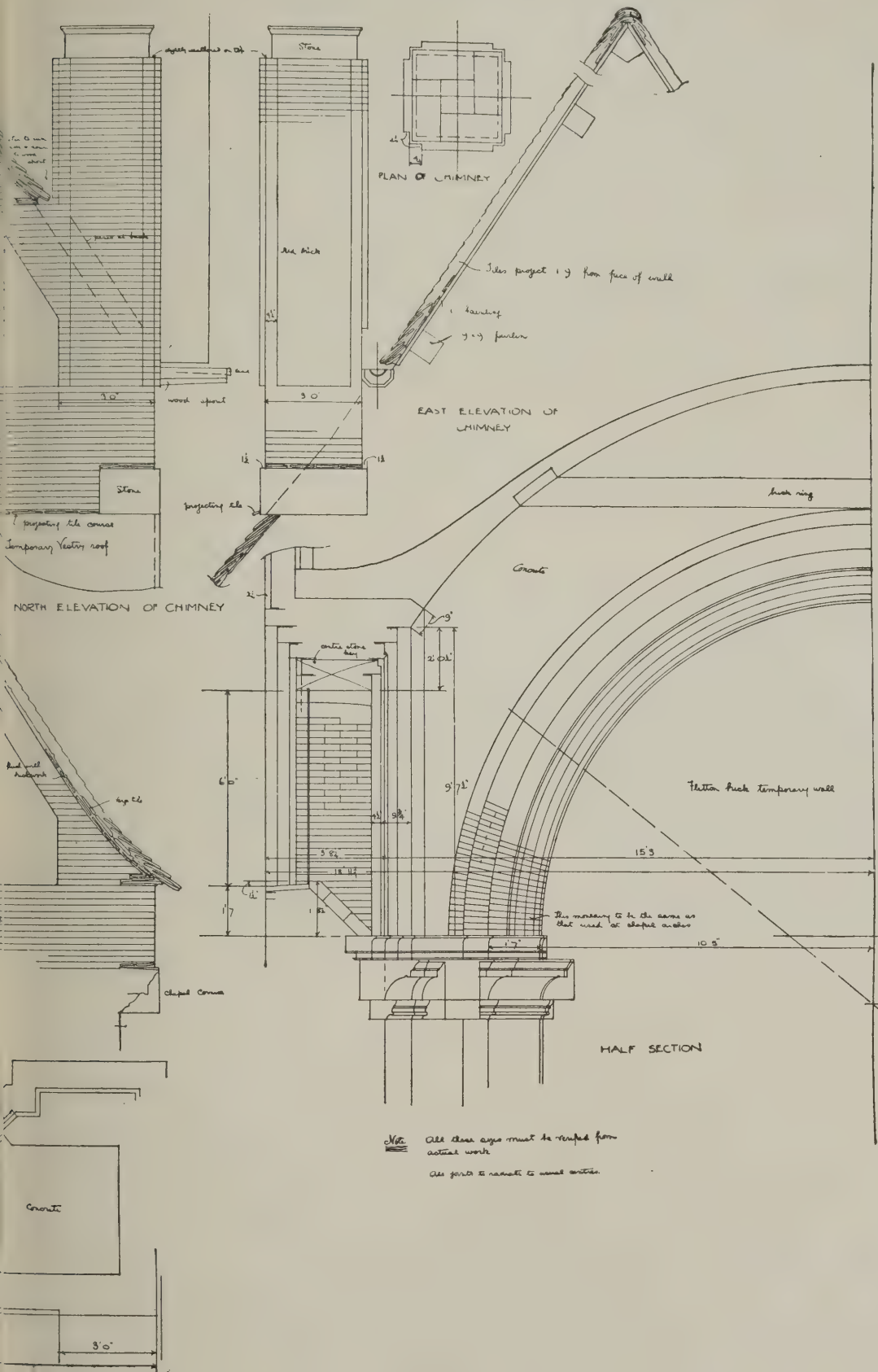
(See page 179.)



CHURCH OF ST. JUDE-ON-THE-HILL, HAMPSTEAD, GARDEN SUBURB. EDWIN L. LUTYENS, A.R.A., F.R.I.B.A., ARCHITECT.

(See page 184.)





GARDEN CRAFT.*

Books on gardens are singularly apt to fly to the opposite extremes of hyper-sentimentality or intense practicality. On the one hand we wilt in the fulsome fragrance of poetics; on the other we are worried with superfluous details of plant-production. Of these kinds, the former lends itself to soothing charm, provided that one merely sips its sweets and drops the book at the first inkling of satiety; the latter is merely a manual of practice and does not pretend to be literature. It has remained for Mr. H. Inigo Triggs to discover a third and most commendable approach to this subject of perennial interest. He has had the energy and courage to combine history with description, and clearly the work must have involved considerable journeying and research. A coherent account of the rise and progress of the gardener's craft, with notable exemplifications described and illustrated, makes a

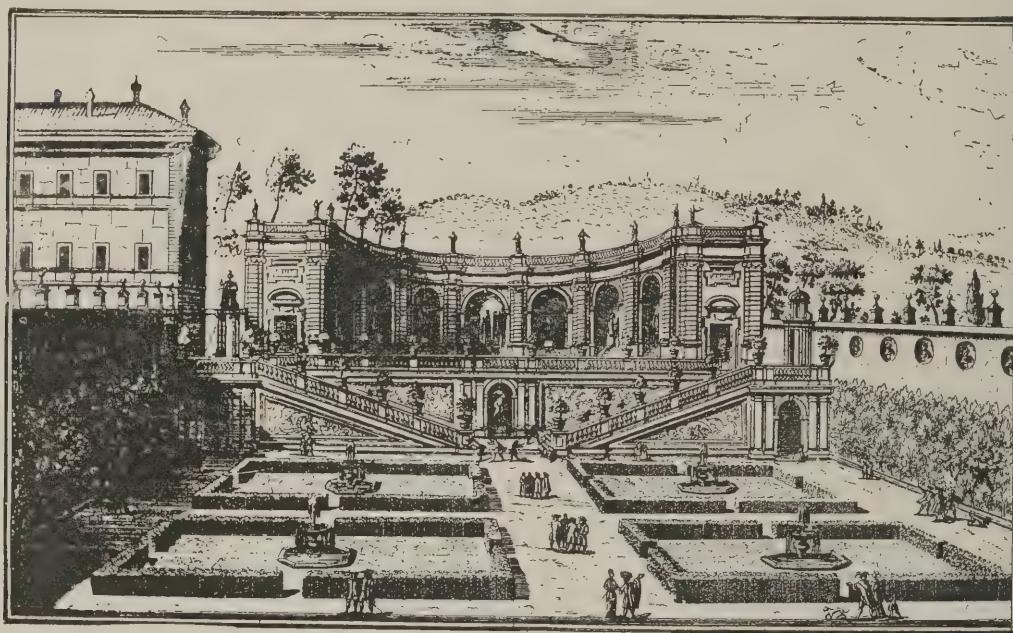
marked the lay-out, a formal garden being conditioned by the lines of the architecture to which it was intended to be complementary. Statuary adorned it—Aphrodite, Dionysius, and the graces and charities. Lycurgus, the orator, formed the Lyceum Garden at Athens, and Aristotle was of the peripatetics who walked and talked in its shady groves. The most ancient allusion to a Greek garden is in Homer's account of the palace of Alcinous. About the sixth century B.C. the Greeks had heard of the beautiful gardens of Persia, Babylon, and Egypt, and well they knew how to turn such knowledge to beautiful account.

Less originality in the adaptation of ideas would grace the practice of the Romans when they imitated the gardens of the Greeks. One of the first on record is that of Tarquin Superbus (534 B.C.), but it was Lucullus who, 400 years later, was the first to set the example of making really princely gardens. His grounds at

treacherous statue tilted at the psychological moment.

With the downfall of the Roman Empire and the onset of the Dark Ages, gardening, like all the other arts of peace, received a severe check. Its revival and subsequent progress were an accompaniment of the monastic system, and in the eleventh century the arts that were again prospering included gardening.

In England the earliest writers on horticulture were monks, the most notable of them being Alexander Neckham (1157-1217), Abbot of Cirencester. The cult owed much to royal example. Edward I., Henry VIII., and Queen Elizabeth ordered much laying-out and planting. Royal gardens were formed at Woodstock, Westminster, Windsor, Whitehall, and the Tower. London had innumerable gardens, those pertaining to the palaces bordering the Strand being particularly fine, the noble owners vying with each other in the lavish attention bestowed on the cul-



GIOVANNI FONTANA'S GARDEN THEATRE AT VILLA MONDRAGONE, FRASCATI.

book that is at once interesting to read and goodly to look upon.

Garden-craft, like all other forms of art, came out of the East—from Egypt, Persia, and Assyria, through Greece to Rome, and thence further westward—the normal passage. Naturally enough, Egyptian gardens were always near the sources of irrigation—on the banks of the Nile or its canals. They were commonly rectangular, and surrounded by an embattled wall or a palisade, with high entrance gates or pylons, whose lintels and jambs were decorated with hieroglyphics. Palms shaded the walks, or the pleached alleys so common in seventeenth-century European gardens were anticipated by the Egyptian "tunnels" of trained plants, and among the other features that have endured were gaily painted pavilions, trellised bowers, and tranquil pools.

Whereas the Egyptian gardens were necessarily flat, those of the Greeks were undulating, and hence could be made much more beautiful. A studied symmetry

Cape Misenum, near Baial, were of splendid magnificence. Cicero was a garden-lover. Around his villa at Tusculum he imitated the philosophic gardens of ancient Greece with covered alleys and terraces. One garden he called the Academy, the other the Lyceum. Virgil and Horace are silent about gardens proper; but Varro, Columella, and Pliny have left valuable descriptions. A restoration, by Haudebourt, of the Laurentine Villa of Pliny the Younger, is included among the many valuable and interesting illustrations in which the book abounds. Ancient Rome was rich in beautiful gardens, in which were adopted almost all the means of adornment known to garden craft—statues, fountains, terraced walks, pavilions, topiary work, or tree and shrub sculpture. The Romans were rose lovers, too, for Pliny mentions the roses of Præneste as being the finest in Italy. It would not be greatly surprising to discover that they had anticipated the hydraulic booby-traps of the eighteenth century, as when, on stepping up to examine an inscription on a statue, one received a drenching from a vase which the

tivation and adornment of their pleasures. At the dissolution of the monasteries, and with the consequent redistribution of the land that had been held by the monks, building went on apace, and with it the formation of many new gardens. Of Tudor gardens a favourite feature was the mount or mound, with its spiral pathway for easy ascent. It is, however, a feature of great antiquity (one recalls the old Dane John of Canterbury). Mr. Triggs cites examples at Rockingham and Boscobel. Another characteristic of the Tudor garden was the gallery surrounding it, giving sheltered access to various outlying buildings, as in the surviving example of the pond garden at Hampton Court. Much of the actual design of the gardens at Hampton Court, as carried out by William and Mary's gardener, George London, and illustrated in the engraving by Kip, was probably Wren's. Nonsuch, the Tudor palace near Ewell, had its spacious gardens, but, like Theobalds, palace and pleasure have disappeared.

The first English writer to give directions for the planning of gardens was Dr.

* "Garden Craft in Europe." By H. Inigo Triggs. Pages xlii. + 332, 11½ ins. by 8½ ins., price 35s. net. London: B. T. Batsford, 94 High Holborn.

Andrew Boorde, who, about 1540, paid attention to this subject in a book bearing the alluring title of "The booke for to teache a man to be wyse in buylding of his howse." Every garden of any account had its fishpond or stewpond, its maze or labyrinth, and, of course, its sundials. The ideal nobleman's garden described in Bacon's essay may be partly or wholly imagined, but is most probably the outcome of eclectic observation—a sort of composite portrait. The Tradescants, who came over from Holland in the reign of James I., not only formed, at Vauxhall, the finest garden in England, but imported from abroad many new plants. At Levens Hall is preserved the most perfect example remaining in England of a garden designed under Dutch influence, although the designer happened to be a Frenchman—M. de Beaumont, a pupil of Le Nôtre. Under Le Nôtre also John Rose was sent to study, returning to England as the best gardener of his time, to take up the position of chief gardener to Charles II. at the Royal Gardens in St. James's Park. John Evelyn, we are reminded, who wrote not less delightfully on trees than Izaak Walton had gossiped on fishing, had indeed a book on garden design, but never got beyond its skeleton; but he laid out the gardens at Wotton—a place-name that Mr. Triggs prefers to spell "Wooton," as is no doubt pronounced—and at Albury, and perhaps, also, the delightful little garden at the moated manor-house at Cromford. Melbourne Hall, Derbyshire, is cited as a good example, on a comparatively small scale, of the manner of Le Nôtre as developed in England.

George London, Wise, Stephen Switzer, William Kent, and Lancelot Brown ("Capability Brown") had successively grown even more absurdly extravagant. Humphrey Repton the successor of Brown in popular favour, had mitigated somewhat on his absurdities, but it remained for Sir William Chambers to introduce a tasteful style, although the Chinese vogue which he started was in its turn developed extravagantly. Chambers designed the gardens at Kew in 1730, constructing there several Chinese buildings, of which the pagoda remains as a curious memorial of an extraordinary craze. Sir Charles Barry was fond of trying his hand at garden design, and countless other architects have since insisted that they should be at least consulted on the lay-out of grounds that have the power to strengthen or to mar the effect of their buildings.

Garden houses were in high favour in the eighteenth century. "They seem to have been of two types—those that closed the vista in a garden at the end of a long walk and those that were placed in the corner of a bowling green or court. These were raised a few steps above the terrace in which they stood, which in its turn sloped down to the bowling green below. With the dilettantism of the latter half of the eighteenth century the substantial summerhouse gave place to the Greek temple and Chinese pagoda." Many examples are illustrated of the quaint garden figures—Flora, Bacchus, Venus, Juno, Neptune, and Minerva were stock subjects—which were so common that survivals of them may be bought by the dozen in Tothill Street and thereabouts.

Having dealt in a former successful volume with "The Formal Gardens in England and Scotland," the author really says less about the gardens of our own country than of those in Italy, France, Austria, Germany, and the Netherlands, but, as we have seen, he by no means neglects the English garden, and he has,

moreover, a most interesting chapter in which the English influence on French gardening is definitely traced. The chapters on Italian and French gardens are the strongest in the book. He shows how in France the art of garden design began very definitely with the reign of Francis the First, who enticed from Italy such masters as Primaticcio, Serlio, and Vignola, "who handed on the finest traditions of the Renaissance to a most brilliant school of Frenchmen, which included Pierre Lescot, Jean Goujon, and Philibert de l'Orme"—their very names melodious to the architect's ear. All the more famous gardens in both countries are described and depicted—as, in Italy, the gardens of the Medici, the Boboli, etc.; in France the creations of Francis the First—Chambord, Fontainebleau, Saint-Germain; and the wondrous works or more wondrous suggestions of Du Cerceau and Le Nôtre ("the gardener of kings and king of gardeners"). The gardens of Versailles (with the famed fountains), Chantilly, the Luxembourg, the Tuileries, Montargis, Beauregard, Blois, Gaillon, the Grand Trianon, Meudon, Marly, and others, are reviewed in due order and with a keen eye to their points of special interest.

The book, produced in Mr. Batsford's best style, contains nearly a score of fine plates, and the illustrations in the text are, in spite of their immense number, invariably interesting, whether they have been reproduced from rare prints or photographed from the actual objects. With competent and exhaustive knowledge of such a fascinating subject, and with an obvious enthusiasm for it, Mr. Inigo Triggs has produced a really fascinating book. It contains a mass of interesting particulars and of acute casual observations, but what we miss is some sort of introductory summary or comparative digest of the author's deductions from his extensive observations, thrown into the form of a readable essay. As it is, the author too modestly leaves the reader to evolve his own general thesis or prepare his own précis on garden craft from the wealth of data that the book provides.

Practical Stone Quarrying.

Neither the architect nor the builder can be said to be thoroughly equipped for his work unless he possesses a fairly thorough acquaintance with the nature and sources of building stones. Messrs. Allen Greenwell and J. Vincent Elsdon have produced a book which seems to contain just the right amount and the right quality of information to meet these particular requirements, although it was more especially planned with a view to the equipment of inspectors of quarries. A chapter on the occurrence of stone in nature, and on the distribution of quarries in the United Kingdom, is followed by a comprehensive description of the methods, machinery, appliances, and operations of stone-winning, and the preparation of the material for the market. Quarrying dangers are also dealt with, and there are chapters on quarry leases, royalties, and wayleaves, and on quarry legislation. It is a most comprehensive and up-to-date manual, replete with every kind of information that concerns the subject.

"Practical Stone Quarrying." A Manual for Managers, Inspectors, and Owners of Quarries, and for Students. By Allan C. Greenwell, Assoc. M. Inst. C.E., F.G.S., and J. Vincent Elsdon, D.Sc. (London), F.G.S. With 339 illustrations. Pages xx + 564, 9½ ins. by 6½ ins., price 12s. 6d. net. London: Crosby Lockwood & Son, 7, Stationers' Hall Court, Ludgate Hill, E.C.

RESTORATION OF AN OLD AYR TOWER.

Since the Tower of St. John Baptist, Ayr, and the surrounding grounds were acquired by the Marquis of Bute a great deal of work has been done in the removal of all modern additions, the stripping of the interior of the tower of all plasterwork and timber finishings, and also in the excavation of a small portion of the church area and the immediate surroundings of the tower itself. It is stated by Mr. James Kennedy Hunter, F.R.I.B.A., architect, Ayr, under whose direction the work of restoration is being carried out, that the removal of the modern buildings and the stripping of the interior of the tower disclosed how many serious alterations had been made on the structure and on the architectural features of the building at the time that the modern work was done.

In the course of the work a number of interesting discoveries have been made. The jambs of the doorway from the nave of the church to the vaulted chamber of the tower have been found in position, and also one "springer" of the arch of this doorway. In the north-east angle of the tower a spiral staircase has been found, the entrance doorway and the lower steps of which are in good preservation. Further work in following up this staircase disclosed that it led up to an ascending passage in the east wall of the tower, this passage in turn giving access to a gallery on the inside of the "rose" window in this gable. The middle portion of the spiral stair has at some time fallen out, and the void so formed has been built up, thus cutting off the actual connection between the start of the staircase and the point at which the ascending passage in the gable begins.

In the east wall of the tower, in what was originally the west gable of the church, there has been found a tall single-light Norman window. This window has been very much injured by the modern work, but sufficient detail remains to allow of its appearance in its place being reconstituted with a very close approximation to accuracy.

The first floor chamber of the tower is the only one which originally had a fireplace and chimney. These remain as they were. The topmost storey of the tower was originally a belfry. The four tall lancet windows, one on each face of the tower, have had their rebates cut to receive louvre boards, and the "rests" of the large timbers required to support the bell carriages have been found in the north and south walls of this chamber. On the first and second floors of the tower a very perfect set of latrines has been found, which, so far as known, is unique in its arrangements.

On the face of the south wall, at the south-east corner, the remains of a decorated corbel table at the level of the wall-head of the nave of the church have been found.

The excavations have been carried eastward over two bays of the north aisle and over a bay and a half of the remainder of the church, disclosing the foundations of the north and south aisle walls, the foundation of nave piers within this area, and the moulded base of the second pier, counting from the west end, of the north arcade of the nave. In the portion of the south aisle which has been disclosed a very fine stone coffin was found. On being carefully examined a small silver coin, similar to those found about 1891 in Montgomerie Terrace, Ayr, was found. A considerable amount of pottery has also been discovered.

THE R.I.B.A. FINAL EXAMINATION: MODEL ANSWERS.

BY C. PERCIVAL WALGATE, A.R.C.A., Lond. (Architecture), A.R.I.B.A., Grissell Medallist, 1910, R.C.A. Travelling Scholar.

HYGIENE, INCLUDING DRAINAGE, VENTILATION, HEATING, LIGHTING, AND WATER SUPPLY.

2½ hours allowed. Five questions to be attempted.

1. The plan accompanying the questions represents the basement of a block of flats four storeys in height.

The positions of the w.c.'s, baths, and sinks are shown.

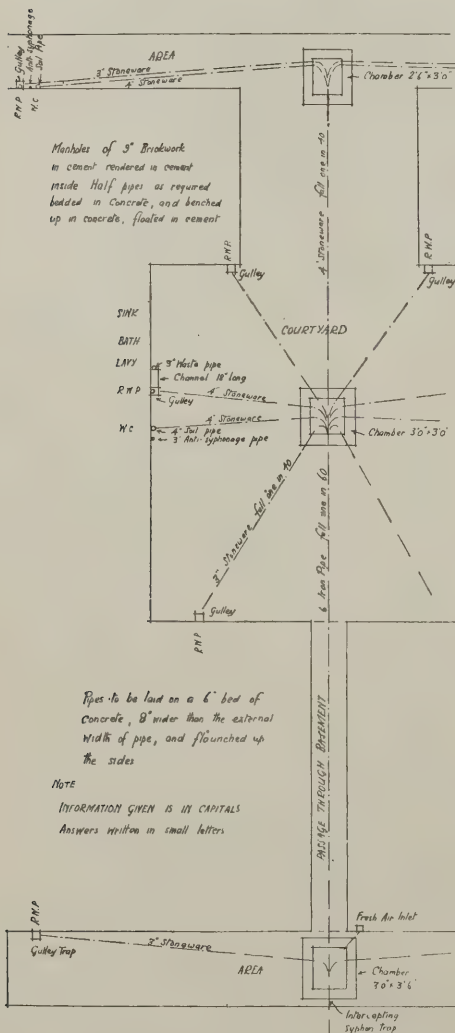
You are required to show on the plan the scheme of drainage, position of drains and other pipes, to figure the sizes of the pipes, manholes, etc., and to state the materials they are to be constructed of, how laid, and to what minimum fall.

Answer.—(See diagram.)

2. Show by diagrams to one inch scale sections through the front manhole in the scheme required in question No. 1, also the joint between soil pipe and drain, the foot of bath waste and gulley to receive same, and the trap to scullery sink.

Give an elevation of the soil and bath waste pipes in question No. 1 to ½-inch scale, showing connections from w.c.'s, baths, etc., and figure sizes of pipes.

Answer.—(See diagrams.)



Question 1.

(Continued from page 145, No. 969.)

3. (a) What are the requirements of the Public Authorities in relation to underground rooms in order that they may be habitable?

(b) What is the minimum size required for the windows of a bedroom in relation to its floor area?

(c) What window and ventilation is required by the Sanitary Authorities for w.c.'s?

(d) What precautions ought to be adopted in keeping the air and damp arising from the ground out of the building?

Answer.—(a) Public Health (London) Act, 1891.

7 feet high, floor to ceiling, 3 feet of which is above ground, unless width of area = height from floor to ground.

Every wall to have damp course, and if in contact with soil to be secured against damp.

Area along whole front 4 feet wide (out of London 2 feet 6 inches wide), and at least 6 feet below floor, and properly drained (i.e., drain at least 12 inches below floor).

Watercloset and ashbin to be accessible, room to have a fireplace with proper flue, windows one-tenth floor area, into the open air, extending to ceiling, and one-half to open.

(b) One-tenth of the floor area.

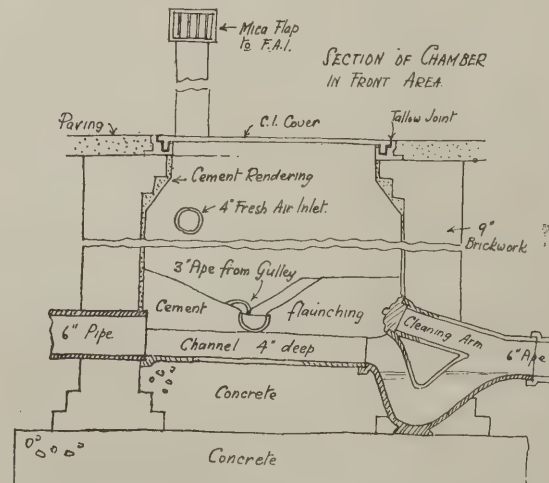
(c) Window 2 super. feet into open air and one-half to open.

(d) Subsoil drainage, 6 inches concrete under whole building, ventilation under wooden floors, D.P.C. to all walls.

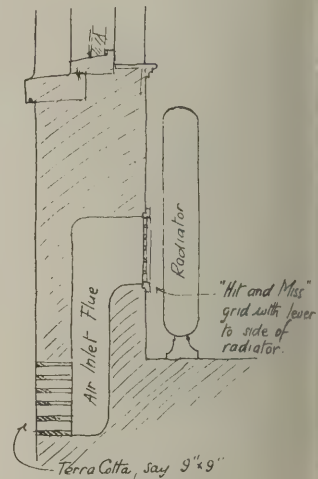
4. What cubic air space per scholar is usually required for schools? How many times should the air be changed per hour, and under what conditions as to velocity and external temperature?

Give a sketch showing the ventilating arrangement you would adopt in connection with a radiator fixed under a window and what number of square inches inlet and outlet vents per occupant is required for a public building with "Natural" ventilation. What temperature is it considered desirable to maintain in living room and bedrooms when the external atmosphere stands at 32° F.?

Answer.—Board of Education demands



Question 2.

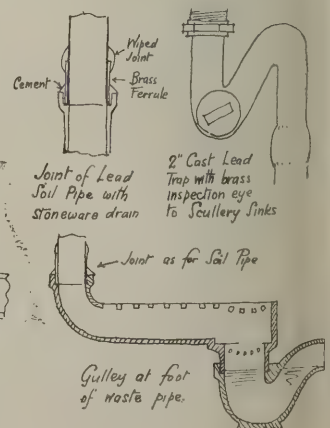


Question 4.

80 c.f. The L.C.C. fixes minimum space at 130 c.f. per scholar, but 200 is usual owing to floor area required. This should be changed three to four times per hour. Warm air can be admitted 5 feet per second without discomfort, but in winter, unless the incoming air is artificially warmed, 2½ feet per second should not be exceeded. With "Natural" ventilation 24 sq. inches net inlet per person is recommended, but rarely allowed. Outlets are slightly smaller than inlets. A comfortable indoors temperature is about 60° F. in the living room, but 50° is enough for the bedroom. See diagram for ventilating arrangements in connection with radiator.

5. What causes "hardness" in water? What effect has it upon iron or lead pipes? What constitutes a good drinking water and how should it be stored? What is the source of water, surface, spring and deep-well water, and under what conditions may they be dangerous to health?

Answer.—Hardness is caused by solution of various salts in the water. It is of two kinds. (1) Temporary: caused by dissolved by aid of carbonic acid. This is precipitated by boiling or the addition of lime to combine with the acid. (2) Permanent: chlorides and sulphates



odium, calcium, and magnesium, various salts of iron, etc., any or all being present in varying proportions. Hardness renders water less solvent and consequently less destructive of pipes, but by deposition of dissolved matters it chokes hot-water pipes. In pipes of iron or lead, hard water forms on the surface a coating of carbonate which is somewhat protective, while soft water forms oxide, and a certain amount of nitrate, which are soluble, and in the case of lead highly poisonous.

Drinking water should be free from micro-organisms, particularly those of intestinal origin, and also from ammonia compounds and fibre, the resultants of the decomposition of organic matter. Aeration and a slight degree of hardness make drinking water more palatable. It should be stored in a cool place, free from danger of contamination; all dust should be excluded, but air admitted. It is best stored under natural conditions in large quantities, when the sun and air have a purifying effect, whereas when it is stored under cover the utmost precaution can

only keep it as pure as when it was admitted.

Surface water, found in streams and shallow wells, is rain water, which is almost certainly contaminated by its flow over the surface. It is usually soft.

Spring water may come to the surface through a flaw in an impervious stratum overlying its natural bed, when it is the same as deep well water, or because of the stratum upon which it flows coming out upon a slope of the ground, in which case it may be either deep or surface water.

Deep-well water is located in a pervious stratum underlying an impervious stratum, which is pierced to obtain it. It has usually percolated a long distance and dissolved much mineral matter on the way, at the same time losing any organic matter it might have held. If of good origin, deep-well water is the best drinking water. The slope of the strata may bring it up to or above ground level when the overlying stratum is pierced, but care must be taken to avoid contamination. This is usually done by using a small bored hole and lining out the upper part with impervious piping.

6. A report is required as to the suitability of a site for an infectious diseases hospital.

Imagine a site, describe its advantages, disadvantages, and also the system of drainage you would recommend—there being no public sewer in its vicinity.

Give an outline description of the system you suggest.

Answer.—The site, which itself is almost free of trees, slopes gently down towards the south. It is sheltered towards the north and east by a pine wood, while towards the south and west the prospect is fairly open down to the sea. The access is from a road which skirts the northern edge of the site, and the situation is high. Below the usual vegetable earth there is a deep bed of sand and gravel, underlying which are impervious strata and sand from which a plentiful supply of pure water is obtainable. A small and rapid stream touches the site at the projecting S.E. corner.

The prevailing wind is S.W.—from the sea, and the sunshine record is very high indeed. These facts render the site of almost unequalled suitability for the purpose suggested.

In the absence of a public sewer the waste waters must be purified before leaving the site, when they can be discharged into the stream and quickly reach the sea. The purification will be effected with the least inconvenience in the low S.E. corner of the site, where the apparatus will be screened from the higher part by a bank of trees. Here, too, the prevailing wind will carry away from the buildings any effluvia which might arise, although after the process is once well established such a consideration will be of small moment.

It is proposed to construct a pair of septic tanks in which the first or an aerobic process of purification will be effected, and that the clear but noxious effluent should then be aerated in flow filters and afterwards discharged directly into the stream below. Any scheme for disposal by irrigation would be unsuitable because of the origin of the sewage.

RESTORATION WORK AT THE TOWER OF LONDON.

Extensive works of restoration are now being carried out at the Tower of London by the Office of Works. A descriptive account of the operations has been published in "The Times," from which the following interesting extracts are taken:

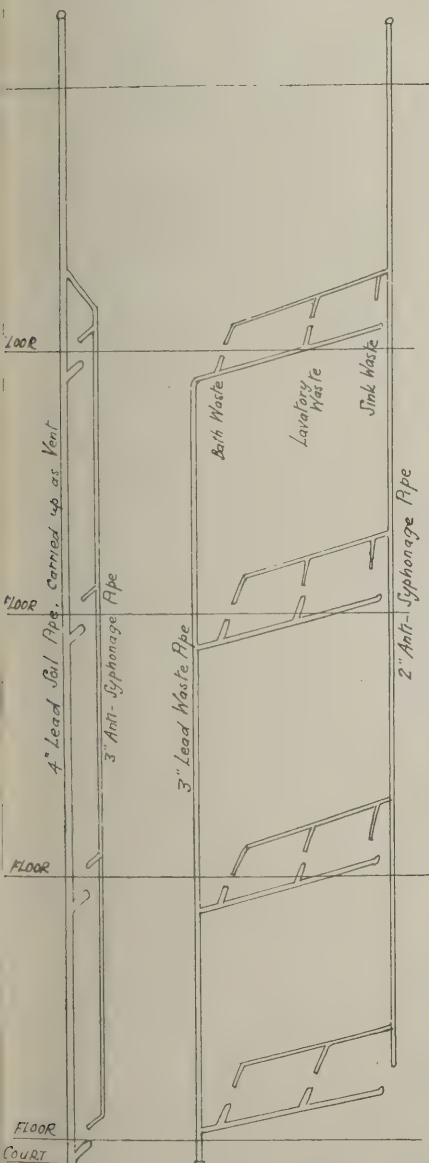
Assumed Cause of Settlements.

Partly, perhaps, owing to the dredging of the channel in the river to a depth which is greater than any previous records show, settlements have taken place in various parts of the Tower and cracks have developed in the Beauchamp Tower, in St. John's Chapel in the White Tower, and elsewhere. These are being kept under careful observation. The decayed face of various parts of the walls and towers has necessitated immediate attention, and repairs to the most seriously dilapidated sections have been carried on for some time past. Here, as elsewhere, it is the constant aim of the staff of the Office of Works not merely to safeguard the ancient buildings from further decay, but to use every care to preserve their character and to harmonise necessary modern constructions with the original work. Not all their predecessors have been so scrupulous. During the last century many of the finest parts of the Tower were defaced with a coating of cement interspersed with flints. This was presumably done in order to keep out wind and weather from the decayed walls at little expense, but the eventual result has been to increase the insecurity of the buildings, while giving them a singular shabby and unworthy appearance. The work of removing this flint plaster and refacing the walls with secure and suitable masonry has so far been chiefly carried out on the Byward Tower, on the Postern Gate Tower which forms part of it and guards the narrow bridge giving access to Tower Wharf and the river, and on the Martin Tower, which stands at the north-east angle of the inner wall. The cement was in many places perishing, and the embedded flints imperilled passers-by. On the upper part of the Postern Gate Tower a thin facing was hanging out from the main surface of the wall to a distance in many places of 4 in. and was thus extremely dangerous. After the plaster was removed it became necessary to repair the masonry effectively, and this difficult work is being carried out with great judgment and success.

Old Restoration Work.

Unlike many castles in more remote situations, the Tower has never been abandoned to mere decay, but in the course of centuries the walls have been worked over and over again with old and new material, much of which was indifferent, while the rebuilding was often poorly constructed. The face disclosed beneath the flint-work was thus in many places loose and rotten and sometimes consisted of mere rubble. On the Martin Tower, where the work for the present is completed, one such mass of half-disintegrated rubble had to be secured with a chain to hold it fast while the repairs went on. The joints had to be repointed to a depth of 4 in. owing to the decay of the mortar; large cracks were filled and consolidated by liquid concrete injected by the grouting machine, and the old disconnected quoins were reinforced at intervals by new ones securely bonded to the wall faces. One guiding principle is to use stone which is not only durable but harmonious in texture and colour, and an-

DIAGRAM OF SOIL PIPES AND WASTE PIPES FOR A FOUR-STOREY BLOCK OF FLATS



Channel and Gully here

Question 2.

other is to keep the joints subordinate to the outlines of the stone. This is done by using a special grit mortar which is brushed over when still soft, so as to leave the grit standing out and avoid the flat and soapy appearance which is an eyesore in itself and hides the characteristic lines of ancient masonry. A final touch of attraction has been restored to the Martin Tower by opening up a blocked-up arrow slit found in the course of the repairs.

The Byward Tower.

The work still proceeding on the Byward Tower offered slightly different problems. Here, too, there was much disintegration, but it was largely caused by the decay of the iron cramps securing the ashlar and the iron grilles guarding the windows. The iron had expanded so much in rusting that it had fractured stone after stone, splitting off a rough segment of a circle from each angle where the ends of the cramps entered. The loosened ashlar face, which in places was only 4 in. thick, had fallen away from the masonry behind it and was merely secured by the string-courses, leaving an abhorrent void. The fractures caused by the cramps have been cut square, and new stones inserted to bond the whole fabric together, while the old stones have been secured by dowels of slate. Where the iron grilles had shattered the stones to which they were fixed they have been replaced by new grilles set out from the face of the wall so as to prevent the disruptive action of rust. During the progress of this work great care had to be taken to prevent the masonry falling; it has been successfully held in place by a series of struts and supports. Two vertical fissures discovered on the south bastion have been cut out and new stones bonded in throughout. Another sign of serious settlement is to be seen in the north face of this bastion, which overhangs to a distance of 18 in. This wall is being carefully watched for signs of further movement.

No Sham Antiquity.

In another part of the Tower the existing conditions necessitated a different method of treatment. The north wall of St. Peter ad Vincula—on the far side from Tower Green—has been entirely refaced with new stone. Here this was the only satisfactory course to adopt, for after stripping away the cement and flints nothing was found but an unfaced wall of rubble. As in other places where completely new work is necessary, all appearance of sham antiquity has been avoided, but the wall, though frankly modern, is thoroughly in keeping with the ancient buildings round it. This effect has been secured by sound and simple building in Kentish rag. The north wall of this chapel now presents a very favourable contrast with the south side, where the incrustation of cement and flints is variegated with oyster-shells. The removal of this defacement to the sixteenth-century building, like that of other modern accretions, may be hoped for in course of time as funds allow.

High on the face of the White Tower the mutilated outline of Norman arches remains to protest against the bull's-eye windows inserted for the accommodation of a clock. These arches are now to be restored and the clock is to be transferred to a more appropriate situation on the front of the barracks. Various unnecessary accretions have already been removed, and the work has been taken in hand of reducing the outgrowths of modern domestic architecture on the inner side of the main gate or Middle Tower.

IN PARLIAMENT.

(By Our Press Gallery Representative.)

The Admiralty Arch.

In the House of Commons Mr. King asked Mr. Wedgwood Benn, as representing the First Commissioner of Works, whether he had noted the proposal that the Admiralty Arch should be surmounted by a block of sculpture or a model of Nelson's ship the Victory; whether the structure of the arch admitted of such a proposal being carried out, and whether any practical suggestion of this kind would be favourably considered?

Mr. Wedgwood Benn, in reply, said it was originally proposed to place a group of sculpture on the Admiralty Arch, but after careful consideration the project was abandoned.

Inspection of Cradles and Derricks.

Mr. W. Thorne asked the Home Secretary whether his attention had been called to three men being killed at the West Ham Gasworks on August 1st in consequence of the painting cradle falling, through a rotten rope being used; whether the coroner stated that he hoped the factory inspectors who were present at the inquest would recommend a better system of testing the ropes; and whether he was prepared to grant powers to local authorities to enable the local inspectors to examine ropes attached to all such painting cradles and to inspect the chains attached to Scotch derricks and cranes?

Mr. Ellis Griffiths, the Under-Secretary, stated that the Home Secretary had received a report on the circumstances of the accident and the proceedings at the inquest. The coroner appeared to have said that it was within the province of the inspectors to recommend the making of regulations for bringing about a better system of testing ropes. But the painting of buildings was not, as such, within the Factory Act, and further powers must be given by legislation if the Home Office was to deal with the matter. The provisions of the Buildings Bill, which was in draft, would enable regulations to be made as to the precautions to be observed in connection with cradle ropes, and the matter would be considered when the bill passed. He would point out, however, that the Building Accidents Committee had this point before them, but did not recommend the testing of ropes in use, and it was doubtful whether any system of testing which might be likely to accentuate a latent defect would be desirable.

Mr. Thorne asked whether legislation would be introduced next session to deal with the subject?

Mr. Ellis Griffiths replied that he could not pledge the Government on a matter of that sort.

Whitehall Improvements.

Mr. Harris asked whether in connection with the proposal to appropriate a sum of money for the building of an extension of the Admiralty offices it was proposed to keep the new building back so as to provide for a future continuation of the widenings of Whitehall already executed by the Government in connection with the erection of new public offices in this thoroughfare.

Mr. Wedgwood Benn, in reply, said the building line of Whitehall on the West side of Charing Cross was governed by Drummonds and Cox's Biddulph Banks, to the north of the site in question; by the Admiralty screen, the Paymaster-General's building, and the Horse Guards to the south. In these circumstances there was little use in setting back the proposed

additions to the Admiralty. Any widening required could be made on the east side of Charing Cross.

Revenue Bill Dropped.

The Revenue Bill, which contained provisions amending the 1909-10 Finance Act with regard to land taxation—particularly "builders' profits" and the hardships small owners of property—has been withdrawn, the Chancellor of the Exchequer promising that the bill would be introduced again early next session. It is impossible to come to an agreement on the clause dealing with the valuation of agricultural land, and as the bill became contentious the Government could not find time for passing the measure through a long Committee stage without upsetting the arrangements for prorogation.

Art Students.

Mr. Pease, the President of the Board of Education, informed Mr. King that there had been no material variation in the number of students registered at Schools of Art during the seven years ending with 1911-12. The numbers for that year were slightly lower than for the previous year, but he was informed that on the other hand they attended for a somewhat greater number of hours, so that the total amount of work done was, if anything, a trifle increased. No statistics for 1912-13 would be available for many months. There had been no suppression of drawing in elementary schools.

CLEARANCES AT ST. BARTHOLOMEW-THE-GREAT.

In an appeal on behalf of the restoration fund of the church of St. Bartholomew-the-Great, West Smithfield, the Rector, the Rev. W. F. G. Sandwith draws attention to the fact that the freehold of two further portions of the site of this Norman priory church have been uncovered. Both adjoin the church on the south side; one portion, which was the site of the sacristy, has been obtained by exchange. The other portion, which was the site of the northern end of the Prior's house, is the generous gift of the patron of the benefice, Mrs. Bowen Buscack and her son, Mr. Noel McG. Phillip. Steps have already been taken to clear away from the first portion Pope's Cottages, which occupied the site of the sacristy, and the Rector is desirous of clearing away from the second portion the three-storeyed house which abuts on the church. This house also covers the interesting foundations of the ancient south apsidal chapel of Rahere's church, and now present serves as the only vestry room the choir vestry possessed. Beneath the dwelling-house is the boiler-house, the furnace of which actually stands within the walls of Rahere's chapel, and is only covered by the wooden floor of the old ramshackle vestry above. To protect the church from all possibility of fire, the committee are removing the boiler-house to a position entirely outside the church at the north-east side, and demolishing the present Vestry House. Upon the site being cleared Mr. G. D. Atkin, a member of the Restoration committee, has very generously offered to build at a cost of £500 a substantial choir vestry. As a further protection from fire, which might arise at any time from the close proximity of large inflammable warehouses, it is proposed to protect the roofs and windows of the building by a system of "drenchers." It is also proposed, as soon as funds will permit, to instal electricity. The cost of these works is estimated to amount to £2,430.

TRADE AND CRAFT.

The Powell Wood Process.

An exhibition of Powellized wood has been held in the furniture showrooms of Messrs. William Whiteley, Ltd., Queen's Road, Bayswater, the exhibits ranging from cabinet-work of the highest class to lepers and constructional timbers. All the specimens of furniture shown have been made from timber which a few weeks before was in the green, unseasoned state. It is claimed that by the Powell process newly felled timber can be converted into better seasoned timber within a few days, or weeks at most (according to its thickness) than in as many years by air-drying, and that large stocks of timber for seasoning are therefore no longer necessary. The process in no way alters the nature of the timber. It consists in treating wood in a saccharine solution, a "liquid timber" for which wood has a strong affinity. Neither pressure nor vacuum is used at any stage, but the timber is allowed to absorb merely the amount of solution required by each part of the wood to make the whole homogeneous. When the process is completed the absorbed saccharine matter is found to be thoroughly assimilated by the tissues and held in molecular combination with the cellular fibres of the wood. Every valuable quality is enhanced, while at the same time the wood is sterilised and made stable. The cost of Powellizing is so low as to render the process suitable alike for the finest cabinet woods and for constructional timber. Powellized wood, it is claimed, is not liable to warp, crack, shrink or expand, and is not liable to dry-rot or decay. The company is prepared to guarantee this in all buildings where Powellized wood is exclusively used. It is so immune from attack by white ants. A pamphlet fully describing the process is issued by the Powell Wood-Process Syndicate, Ltd., 718-19, Salisbury House, London Wall, E.C.

The "Beacon Light" (Valveless) Gas Generator.

For places where there is no public lighting supply, as in country houses, or in remotely situated institutions such as hospitals and asylums, there are, fortunately, now available systems of lighting which in effectiveness are hardly inferior to coal gas and electricity and, indeed, offer in some respects material advantages over the older systems, as, for instance, in the cost of consumption, and, perhaps, in that of installation. It is shown that the cost of petrol gas is very low, and that, given an efficient means of production, excellent lighting by this system is very economically obtained. The plant here described obtained the highest award at the Royal Sanitary Institute Exhibition which was held at York last year. Since then various important improvements have been made, and it has again obtained this award (in competition) at the exhibition of the Institute which was held at Exeter during the past month. The "Beacon Light" plant is the only generator which has obtained the silver medal of the Institute.

The "Beacon Light" plant is remarkable for its simplicity and compactness, and is substantially constructed of steel plate (welded and galvanised) and copper and gun metal. The parts are assembled on a steel angle section, supported on strong cast-iron legs, the winding drum being fixed to a stiff steel spindle in ample

and well-lubricated bearings in a rigid framing bolted to the compressor drum. The petrol feed spindle is hollowed for grease lubrication and fixed to it is a gun-metal arm with swinging gun-metal buckets, these being enclosed in a cast-iron case, as is also an adjustable gun-metal cam, which tips up the buckets into a trough and also controls the amount of requisite petrol. The compressor, which is driven by a chain from the winding gear, consists of an outer case of 7/8-in. steel plate welded at the joints and galvanised, and an inner vaned drum of lead-coated iron mounted on a steel spindle bushed with gun-metal, where it runs in the gun-metal bearings attached to the case, and a gland adjusted by bolts is fixed to prevent leakages. The incoming air is controlled by the amount of gas used through the medium of the gas bell. The air so obtained is, by means of the action of the compressor, thoroughly mixed with the petrol and passes out in the form of gas through a copper pipe into the gas holder, thence passing out through another pipe to the main, to which a cock is provided. The outer portion of the gas holder is made of lead-coated iron, guide rods being riveted on, one of which acts as a fulcrum to the brake lever, which closes the air valve when the bell is full.

The illustration shows a section of this generator, in which it will be noticed that there are no petrol valves, pumps, or taps, all moving parts having been reduced to an absolute minimum, with the result that wear and tear are negligible. No extra knowledge in working the machine is necessary, the winding up of the weights being the only attention required. The plant is entirely automatic, starting with the turning on of the first light and stopping when the last light is turned off.

By means of the patent adjustable cam, gas of any desired degree of richness (to suit different qualities of petrol or various makes of burners) can be obtained and maintained to a perfect uniformity. Existing gas pipe can be used, while no special makes of burners, fittings, or mantles are required. No petrol is stored in the machine, this being supplied from a separate outside storage tank, the correct

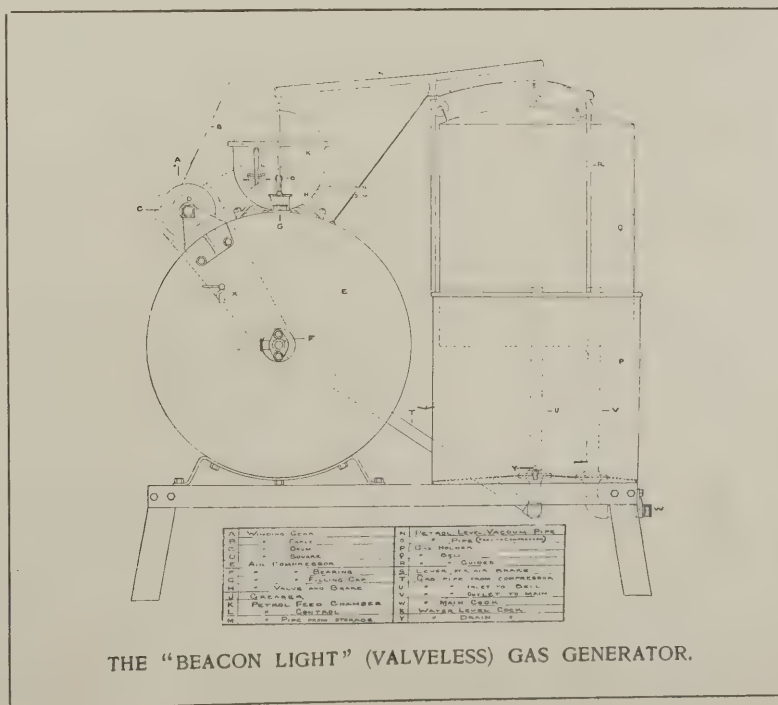
level being maintained by means of a vacuum through a pipe, so that only sufficient petrol is supplied to the machine as may be required from time to time; thus there is only a very small quantity in the generator at any time. All parts of the plant are easily accessible and are standardised. Installations by this system are accepted by all insurance companies without extra premium. The light is soft and pleasant, consuming only an inappreciable amount of oxygen, without vitiating the air. The address of the Beacon Light (Valveless) Gas Generator, Ltd., is 105, Horseferry Road, Westminster.

"Pudlo."

We understand that Pudlo, the powder which makes cement waterproof, manufactured by Kerner-Greenwood and Co., King's Lynn, has been specified for use on the Royal Albert Hospital, Devonport. It is also being used in the construction of the promenade at Hunstanton, the promenade forming the roof to shelters on the beach. We are further informed that the Duchy of Cornwall (Prince of Wales) may now be numbered among the important users of Pudlo and that more than forty-four tons of it (representing one of the largest orders ever placed for this class of material) are being supplied for the new reservoir in Winnipeg.

Claridge's Patent Asphalte Company, Ltd.

We are informed by Claridge's Patent Asphalte Company, Ltd., that Mr. F. J. L. Robertson has been appointed secretary and manager in the place of Mr. R. T. Wilkinson, who has accepted a seat on the board. Among recent works carried out or in hand by this old-established company are included the asphalte work at the premises of the British-American Tobacco Company, Ltd., Millbank; at Sledmere Hall, for the late Sir Tatton Sykes; at the Hospital for Diseases of the Heart, Westmoreland Street; at the London County and Westminster Bank, Haslemere; the Jockey Club, Newmarket, etc.



THE "BEACON LIGHT" (VALVELESS) GAS GENERATOR.

MOTORS FOR TRADE AND MUNICIPAL PURPOSES.

CLEANING AND INSPECTION—SYSTEM IN LOADING—MOTOR FIRE ENGINES.

[*Specially Contributed.*]

THE efficiency of the truck, its service and economy, depend primarily upon its mechanical condition. Dirty machinery seldom pays, although the dirt may be on the outside only. One of the first things an expert inspector does when looking over a truck is to report the fact if it is unduly dirty. Before attempting an inspection he will often be forced to laboriously clean off a layer of mud and grease from the parts.

Cleaning and Inspection.

One firm using a large number of trucks is not accustomed to require daily cleaning of its cars, and as a result, though the body panel work may be wiped off for the sake of appearance, the underparts are filthy. One truck belonging to this concern was observed recently with the spring-eye broken and part of it lost. The hanger and spring were so incrustated with mud that the fact had never been noticed, and the spring seemed to act properly without the missing piece. However, on some bad rebound the other spring gave way under its double load. Examination of the spring showed that the trouble had developed from a small crank until water and rust and vibration had caused it to break through. Had the driver been required to clean the truck each day, the cracked spring-eye would have been noticed, reported, and remedied in time.

Not only is cleanliness an aid to locating troubles, but it is a certain method of ensuring the thorough inspection of the truck daily. If the driver must go over every part with a sponge and hose each day, he will at the same time examine each part, and parts out of repair will be noticed. No matter how non-technical an owner may be, it is an easy matter for him to take a few moments each day to look the truck over, noting whether or not it is clean, thus assuring himself that the driver is giving regular attention to the vehicle.

Just what the owner of one or two trucks should require of the driver in the way of daily prophylactic attention and adjustment depends to some extent upon the truck; but in general every owner should employ the most effective means at his command to assure the following attention to the truck. The driver should be required to go over each part of the truck daily, at such time of day as it is most convenient. A special time included in his 10-hour working day should be apportioned, as there is no more profitable employment of his time. He should be encouraged to report any irregularity of running to the owner.

He should be required to turn up the grease cups daily and to see that each is filled. He should be required to keep the chassis parts clean. He should be obliged to go over every working part, even to the joints in the brake-rods, with an oil can, and the tyres should be given regular attention. This sounds like a rather arduous routine, but experience shows that an average of half an hour per day will be ample time for the intelligent driver to expend.

Wherever possible this time should be taken after the day's work is done, for two reasons. Knowing that he has nothing further to do, the driver will try to get it done as quickly as possible in order to get home earlier than otherwise. Having

nothing more to do that day, the driver can complete any special repair without slighting it through lack of time.

The proper method of cleaning a truck is to use a hose with a gentle stream of water and a sponge to wipe off the mud. On parts liable to be rusted by the water, a cloth should be used to dry them thoroughly. These parts are the most susceptible to derangements, and therefore require the most attention. For this reason, going over them twice is especially advantageous.

In a private maintenance garage in London, which is always open, the night shift is made up of washers, who are required to deliver each truck to its driver in a clean condition in the morning. This seems a good thing in a way, as it permits the driver to inspect the truck readily, unhampered by dirt, should he be so disposed. However, as the driver is not always so inclined, trucks frequently go uninspected. Were the drivers themselves required to wash the trucks each evening, one man would suffice for the night shift. This is where a concern has two or three machines.

System in Loading.

The operations of loading and unloading are the links that connect internal system with external system. Let us suppose that a big retail store has elaborately organised its internal delivery system to correspond with the efficiency of a fine fleet of motor vehicles; let us suppose also that not a jot of time is lost from the moment the goods are ordered till the time they are packed and addressed, ready for delivery. Internal system does this; and external system delivers the goods with the least possible delay. But the connecting link may be weak. Many and many a time are alleys in big cities, similar to those into which most loading platforms abut, congested and rendered almost impassable by a string of horse vehicles, motor trucks, light delivery wagons, all waiting for their turn. And if they have to wait for their turn, so also will the goods have to wait on the loading platforms for their respective delivery wagons. Consequently, internal system is wasted, external celerity of delivery is of no avail.

This is not an imaginary supposition. Every minute a delivery wagon waits in idleness is actual loss of money. Systems are useless when loading facilities are nil. The motor vehicle is mechanical; then methods, facilities, arrangements must be mechanical. There must be no hitch. All must be kept lubricated with the oil of constant habit.

Loading platforms should be constructed in a commonsense manner. Before installing a motor delivery system, let the merchant, wholesaler or retailer, look to his loading facilities. They may have done very well for horses; horses like rest—in fact, they must have it; but to a motor truck rest is an anti-existence. Let the merchant draw a plan on careful measurements; he must time his delivery system so that there must be no congestion, even at the busiest hour of the day; if he finds that someone else's loading platforms get in the way, then he must negotiate with that person and point out to him in a tactful manner how much better for both certain modifications would be; if argument fails, then he had

far better construct new platforms, another part of the building than attempt to work motor vehicles from loading places that at any time may be hampered.

Motor Fire Engines.

The great point to be considered when equipping a fire department with fire fighting apparatus is not minimum cost but greatest efficiency of such apparatus. The motor can be used as a driving force for the wagon and as a pumping force for the water. As to the first, there is absolutely no question of the superior service that a motor-driven piece of apparatus can render in comparison with horse drawn apparatus. In addition to being practically four times as fast, the motor saved in cost of operation and maintenance will in three years' time or thereabouts save the initial cost of an expensive motor machine. With regard to the motor as a pumping power, tests have been made for the last year or two, and there has seemed in many cases something lacking in order to place the motor above steam as a pumping power, and to eliminate the steam fire engine. Not however, the motor as a pumping force seems coming into its own; engineers have devoted a great deal of time and labour to the perfection of the motor fire engine, and gradually weaknesses are being eradicated and improvements are being added, one by one, all alike biding for efficiency, constant dependability and simplicity.

It is pleasant to any fire department to find that after having secured the most efficient fire-fighting machine on the market, cost is being decreased every day while the new machine is in use. There is ample proof of the immense saving in total expenses when motor apparatus replaces horse apparatus.

The most economical piece of apparatus for a small town determined eventually to motorise the whole of its fire department seems to be the triple combination engine. This is a splendid machine for testing the efficiency of motor fire apparatus before making a complete change in a department. In a few months time figures are forthcoming from all directions with regard to work accomplished, with regard to cost of maintenance and operation saved, and with regard to superior quickness in reaching a fire—and all point to the fact that the days of horse-drawn fire apparatus are numbered. It is now only a question of time for the complete motorisation of every fire department in the United States.

From reports received from practically every department throughout the country it is found that in many cases a certain sum of money has been set aside by the municipal authorities for the express purpose of purchasing motor fire apparatus for the department; in all cases it is the opinion of the chief engineer that the motorisation of the fire department should be begun at once, and if a sum has not yet been set apart for this matter it is either because of the lack of adequate funds or the incompetency of the municipal body. In no case is it due to the shortsightedness of the head of the fire department; and all recognise in motor fire apparatus the fire-fighting appliance of the future.

LEGAL.

Alterations in Excess of Estimate.

Judgment has been given by Mr. Justice Bailhache in the cases of Holland and Hannen and Cubitts, Ltd., v. Lord Decies (by original action), and Lord Decies v. Holland and Hannen and Cubitts, Ltd., and Horace Farquharson and Evill and Morle.

His Lordship said that the circumstances out of which the litigation arose were that in December, 1910, Lord Decies was desirous of having very extensive alterations to his house at Sefton Park, involving practically the rebuilding of the drawing-room and dining-room, and the reconstruction of the hall and a bedroom, and other alterations. Lord Decies got into communication with an architect, Mr. Farquharson, who submitted certain plans. On January 6th, 1911, the architect made a report to Lord Decies. The estimated cost of the work was from eight to ten thousand pounds. At that time it was intended that the work should be finished off plainly without ornamentation. Lord Decies went away to America, and the work was put in hand. While Lord Decies was away he was represented by his solicitor, Mr. Anderson, who was employed to sign the contract with Messrs. Holland, Hannen, and Cubitts, Ltd., the builders. In the meantime a schedule of prices was prepared. In April Lord Decies returned from America, and determined that there should be considerable ornamentation in addition to the plain work, so the original estimate was very considerably exceeded. The bill increased to £18,000, and ultimately reached the sum of practically £20,000.

In April, 1912, Mr. Addis, a quantity surveyor, reported on prices up to £13,500. Lord Decies had paid £13,000 and was unwilling to pay any more money until Mr. Addis's inquiries were completed. The builders, however, had become impatient, and in February, 1912, issued their writ for £6,000 odd. The architect had complied with the request of the builders and had given them a certificate for that amount. Application was made to get judgment under Order XIV., an application that was obviously foredoomed to failure. The action first came before him last year on a preliminary point which he decided in favour of the builders. Mr. Farquharson the architect, and Messrs. Evill and Morle were brought into the action and made defendants to the counter-claim of Lord Decies against the builders alleging collusion and fraud on their part with the builders, and also alleging negligence. Very early in the case he had come to the conclusion that there was no foundation for the allegations of collusion and fraud on the part of the architect Mr. Farquharson and Messrs. Evill and Morle.

His Lordship then found that, with regard to Holland, Hannen, and Cubitts, Ltd., certain day-sheets contained fictitious names and hours entered by certain employees; that the sheets containing these names and hours passed muster in the office, and that the principals were quite innocent and ignorant of what had been done. His Lordship added that he himself would have been proud to have acted as Mr. Hannen had acted when he discovered what had been done, and that he hoped the employees concerned would not suffer in their career. His Lordship awarded Lord Decies £5,121 ss. 7d. damages against Messrs. Holland, Hannen, and Cubitts, Ltd. He found that there was no foundation for the allegations

of fraud and of collusion against Mr. Farquharson and against Messrs. Evill and Morle. But he found that Mr. Farquharson had been careless in some matters, and so had been negligent in the legal sense of the word, and he awarded Lord Decies £50 damages in respect of the negligence, and there was £300 rebate from his fees. So there was judgment against him for £350. Lord Decies owed him £500 for fees. He also found negligence in some respects against Messrs. Evill and Morle, but he did not award damages against them.

Accordingly Messrs. Holland, Hannen, and Cubitts, Ltd., in the original action recovered judgment for £7,035—certain sums were added since issue of writ—against Lord Decies, and they would have the costs of the action. Lord Decies recovered judgment against Messrs. Holland, Hannen, and Cubitts, Ltd., for £5,121 ss. 7d., and Lord Decies would have the heavy costs of the counter-claim. There would be judgment against Mr. Farquharson for £350. He must pay the costs attributable to his negligence, which would be small, and he would get the costs on the issue of fraud and collusion. Messrs. Evill and Morle would pay their own costs, and no one else's.

Delivery of Steelwork: Manufacturers' Successful Claim.

In the King's Bench Division, before Mr. Muir Mackenzie, Official Referee, the case has been concluded of Redpath, Brown, and Co. v. W. C. Shepherd and Co. The writ was issued on May 26th, and by it the plaintiffs claimed from the defendant, a builder in a large way of business, a sum of £286 as the balance of an account for steelwork supplied to a building of the defendant's at 10, Coleman Street, in the City. On June 13th the plaintiffs obtained judgment for their claim, but execution was stayed pending the trial of a counterclaim by the defendant for a very large sum as damages for delay in delivering the steelwork.

The defendant had contracted to pull down an old building at 14, Coleman Street and erect on the site a new building, to be arranged as City offices of a high-class character. In October last the defendant entered into a contract with the plaintiffs by which they undertook to supply complete steelwork for the building at prices which worked out at about £1,000 for the whole work. Deliveries took place during November and December, 1912, and January, 1913; but at the end of January the plaintiffs suspended deliveries on account of a dispute between them and the defendant as to the non-payment by the defendant of the plaintiffs' monthly account. The dispute was arranged and deliveries were resumed, delivery of the whole steelwork being completed on May 2nd. The defendant complained both of general delay in delivery and also of the suspension of deliveries during February, 1913, and alleged that the completion of his building had been postponed owing to the plaintiffs' default and that he had thereby lost valuable tenancies. He claimed about £700 damages. The plaintiffs' answer was in effect that they delivered the steelwork as promptly as was possible, and that the length of time taken was due to inaccuracies in the plans and drawings of the architect and steelwork engineer employed by the defendant, and to continual changes in the design and arrangement of the steelwork which the plaintiffs had to carry out.

The Official Referee, in delivering judg-

ment, held that the plaintiffs had not failed to deliver the steelwork as promptly as was possible, and that the suspension of deliveries in February, 1913, was justified having regard to the defendant's failure to pay his monthly accounts, and dismissed the counter-claim with costs. A stay of execution was granted.

Architect Sued for Return of Fees.

At Runcorn, Hugh Calvey, a Helsby railwayman, sued Samuel Davies, architect, of Frodsham, for the return of fifteen guineas, architect's fees.

The plaintiff stated that he came into a legacy of about £600 and decided to build two semi-detached houses. He instructed Mr. Davies to draw the plans, but when the tenders came in they ranged from £750 to £895, which was very much more than he could afford. He had paid Mr. Davies £15 on account of his fees, and he claimed that he was entitled to this money back, since the plans had not been of any use to him.

For Mr. Davies it was asserted that the plaintiff had abandoned his building project through some difficulty that had arisen with the Rural Council over road widening. The plaintiff had offered to modify the plans to suit Calvey's purse.

Judgment was given against the plaintiff.

NEW MUNICIPAL BUILDINGS,
TORQUAY.

The new municipal buildings and town hall recently erected at Torquay from the designs of Mr. T. Davison, A.R.I.B.A., have just been opened.

The site is in the centre of the borough, with frontages to St. Mary Church and Lymington Roads, and the Carnegie Library adjoining forms part of the completed scheme. The design of the new buildings is in the style of the English Renaissance, with a clock tower rising 100 ft. high, marking the centre of the building and the principal entrance. As far as possible the design has been carried out in local materials, Barton stone being used for the walling, with Beer stone dressings, and the roof covered with Delabole slates. Internally a free use has been made of the local marbles. The principal staircase, with dados, etc., to grand hall and corridor is of Ippepen and Ashburton marble, relieved with alabaster.

The planning of the building has been greatly influenced by the unusual nature of the site, there being a difference in level of nearly 30 ft. between the front and back of the building. The principal entrance in the middle of St. Mary Church Road front gives access to the Town Hall and Council and reception rooms. A corner entrance at the junction of the roads is provided as a business entrance to the offices, and a further entrance from the Lymington Road to the Town Hall and gallery.

The Municipal Buildings, in five floors, house the Council, with the various officials and their respective staffs. The first floor contains the Council Chamber, committee and reception rooms, with the grand hall and staircase, and the offices of the town clerk. On the ground floor further office accommodation is provided, with committee-room, Council's cloak-room, entrance-hall and staircase. The remainder of the offices are placed on the lower ground floor.

The town hall has a total seating capa-

city of 1,200 persons, with an additional 300 in the gallery. A platform, with retiring-rooms and spacious chorus-rooms under, and a crush hall at entrance with cloak-rooms, etc., are also provided. A special feature of the hall is the dancing floor, a large portion of the area being on Valtor springs. The contractors were Messrs. R. Wilkins and Sons, Bristol.

NEWS ITEMS.

Belgian Cement Syndicate.

The Belgian Cement Syndicate is reported to have been prolonged for a further period of ten years.

Cleckheaton Gasworks.

New gasworks, estimated to cost £50,000, are now in course of erection at Cleckheaton.

New Town Hall, Barnsley.

Barnsley Town Council are recommended to arrange for an architectural competition, open to all qualified practising architects, for the new town hall.

Gold Medal for the Ronuk Company.

At the exhibition in connection with the seventeenth meeting of the International Congress of Medicine, the Ronuk Company was awarded a gold medal for their sanitary polishes and appliances.

Foreign Books.

Messrs. W. and G. Foyle, booksellers, have just opened, at 5 Manette Street, adjacent to their premises in Charing Cross Road, a foreign book department, comprising books in every language and on every subject.

An Augmented Partnership.

Messrs. Colcutt and Hamp announce that they have taken into partnership Mr. Philip Tilden, a former pupil, son of Sir William Tilden, F.R.S., LL.D., and will continue to practise at 36, Bloomsbury Square, W.C., as Messrs. Colcutt, Hamp, and Tilden.

Cloth Fair to be Demolished.

A scheme is said to be in contemplation, at a cost of £200,000, to effect an important street improvement in the neighbourhood of the London Central Markets by the demolition of the ancient and historic buildings known as Cloth Fair and the widening of Long Lane to a width of 60 ft.

Rumours about St. Paul's.

There is no foundation for the alarming rumours that have been circulated with regard to the condition of St. Paul's Cathedral. The scaffolding erected round the south-west pier is merely for the work of grouting, which has been proceeding on the pier for some months past in the crypt, and is now to be carried up above the level of the church floor. The statement that the ball was not to be included in the regilding scheme is now denied.

Forthcoming Woodwork Exhibition.

An exhibition of works in wood is to take place at Carpenters' Hall, London, in June, 1914. Valuable cash prizes and medals will be awarded by the Worshipful Company of Carpenters for models in constructive carpentry of architectural and picturesque effect, and specimens of carving, etc. There will be divisions open to amateurs, as well as professional craftsmen and manufacturing firms. An interesting feature will be the loan exhibition of valuable specimens of woodwork, ancient and historic furniture, architectural models, and specimens of rare and

beautiful timber. This early announcement is made in order to give intending competitors ample time to prepare their exhibits. Full particulars may be obtained of the Clerk to the Company, Carpenters' Hall, London Wall, E.C.

Small Houses at Chester-le-Street.

Chester-le-Street U.D.C. propose to erect 106 houses, consisting of seventy with scullery, kitchen, and two bedrooms, and thirty with an additional bedroom. The houses on corner sites are to have parlours.

Spray Baths in Schools.

A new departure is being made at Woburn, in Buckinghamshire, by the introduction in new elementary schools of spray-baths for the children. At one school, costing £5,275, spray baths are being provided at an expenditure of £300.

New Works in "Ferrocon."

The entire ornamental front of the new Tivoli Theatre, New Brighton, is to be executed by Messrs. J. Tanner and Son in their patent "Ferrocon" imitation Storeton stone. The architect is Mr. Colin Brothers, Liverpool. The exterior front of the Golder's Green Palace is also to be carried out by them in patent "Ferrocon" imitation French Caen stone. The architect is Mr. Bertie Crewe.

A Correction.

We regret that a slight misprint occurred in the description of the Arthur Hill Memorial Baths, Reading, published in our last issue. On page 173 it was stated: "The pond hall opens direct off the entrance hall, a wind screen, measuring 101 ft. by 48 ft. 7 in., being provided to prevent draught." The dimensions given refer, of course, to the pond hall and not to the wind screen. We are also asked to mention that the heating apparatus was installed by Messrs. Ashwell and Nesbit.

Building Trade Unions.

The result of the ballot vote on the new scheme for the amalgamation of certain building trade unions has been officially announced. Voting took place on two proposals—(1) amalgamation for trade purposes only; (2) amalgamation for trade and friendly benefits. The returns from sixteen unions gave the appended result:

1. In favour, 14,279; against, 11,483.
2. In favour, 9,611; against, 12,001.

The unions in favour of the first proposal are invited to send delegates to another conference on September 15th.

The Van Eyck Memorial at Ghent.

The monument to the brothers Hubert and John Van Eyck, just unveiled at Ghent, is placed in the middle of the small square which separates the Chateau of Gerard the Devil from St. Bavon's Cathedral. The monument represents the two painters sitting in the centre of a semi-circular group of allegorical figures, the symbolism of which is the nations glorifying the talent of the two Flemish artists. All the figures are in bronze and the ensemble of the group is very happily framed against the massive lines of the cathedral.

Prizes for Craftsmen.

The Thornton Travelling Scholarships which are offered annually to workmen engaged in the building trade on garden suburbs have this year been won by Messrs. W. H. Hall, carpenter on the Brontham Garden Suburb; W. E. Cookson, carpenter, Garden Suburb, Liverpool; and J. H. Cannon, foreman plumber, Garden Suburb Builders, Ltd., who are engaged in the development work on the Hampstead Garden Suburb. Prizes to the value of £2

each offered through Co-partnership T. ants, Ltd., have been won by Messrs. Williams (carpenter), J. Gun (foreman bricklayer), F. G. Jones, (electrician), and F. Prangell (plumber), all of whom are employed by the Garden Suburb Builders, Ltd.

Port of London Authority Offices.

Tenders have been received by the Port of London Authority for the construction of the foundations of the new head office on the Trinity Square site, and that of Messrs. John Mowlem and Co., Ltd., has been accepted.

Architectural Lectures at London University.

Mr. A. E. Richardson, F.R.I.B.A., has been appointed Carpenters' Company Lecturer in the School of Architecture, London University for the forthcoming session. The subject of his course will be "The Work of the English Architects of the Eighteenth Century, and of the Revivalists of the first half of the Nineteenth Century." He will deliver three public lectures on Thursdays, at 6 p.m., beginning October 16.

Sculpture for Cardiff City Hall.

Cardiff City Hall is to be embellished with ten statues of Welsh celebrities, the following is a list, the names of the sculptor chosen for each particular work being given in parentheses:—

Pedestal Groups: 1.—St. David (S. William Goscombe John, R.A., R.B.S.). 2.—Henry VII. (E. G. Gillick, R.B.S.). 3.—Prince Llewelyn (Henry Pegg, A.R.A.). 4.—Howel Dda (J. H. Thomas, M.A., R.B.S.).

Alcove Statues: 5.—Bishop Morgan (McGill, R.B.S.). 6.—Williams Pantycelyn (John Tweed, R.B.S.).

Pedestal Statues: 7.—Dafydd Ap Gwilym (F. W. Pomeroy, A.R.A., R.B.S.). 8.—Giraldus Cambrensis (Henry Pool, R.B.S.). 9.—Owen Glendwr (A. Turner, R.B.S.). 10.—General Picton (T. M. Crook, R.B.S.).

OBITUARY.

Mr. J. B. Corby.

The death took place early on Saturday morning last, as the result of an apoplectic seizure, of Councillor J. B. Corby, Mayor of Stamford. Mr. Corby, who was seventy-four years of age, was well known throughout the Midlands as an architect. He was articled to the late Mr. Edward Browning, an ecclesiastical architect of the last century, and on starting business on his own account was engaged on many church restorations in the country. He designed the town house of the late Lord Rosslyn, the Grafton House at racing establishment at Newmarket of the late Baron de Hirsch, the Hospital at Milton Abbas, Dorset, for Baron Hambro, the memorial hospital to the late Lord Westminster, at Shaftesbury, Wilts, and extensions at Uppingham School, as well as works on the estates of Lord Exeter, Lord Brownlow, Lord Westmorland, Lord Lindsey, Sir Arthur Fludyer, and others. He was one of the senior members of the Stamford Town Council, occupying the position of Mayor last year, and was a member of the Kesteven (Lincs) County Council. He had filled many offices connected with Oddfellowship, was a Fellow of the Surveyors' Institution, and a member of the Council of the Society of Architects.

THE
ARCHITECTS' & BUILDERS'
JOURNAL.

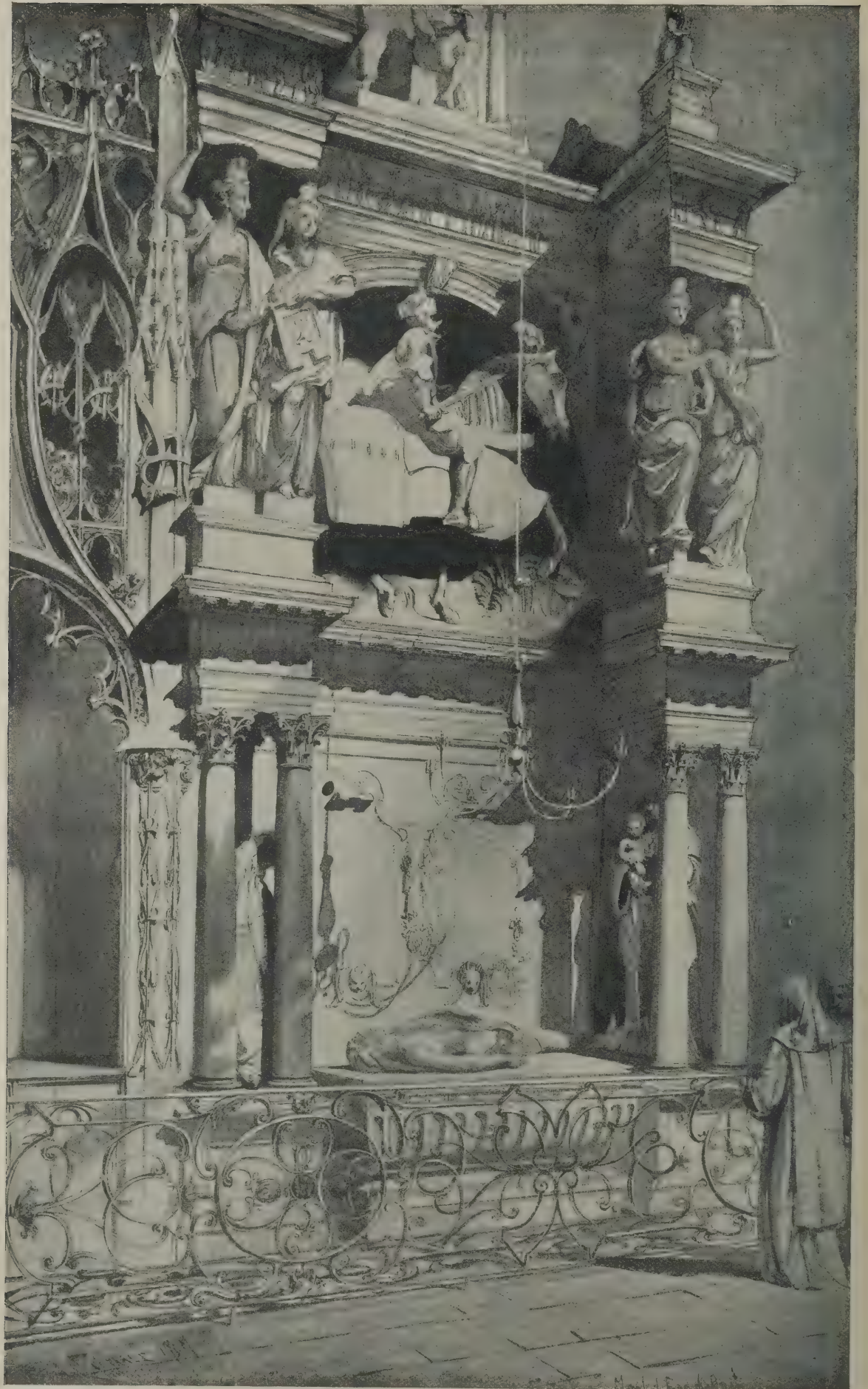
Wednesday, August 27, 1913.

Volume XXXVIII. No. 972.

No. 48.



(From Piranesi.)



TOMB OF THE DUC DE BRÉZÉ, ROUEN CATHEDRAL.

From a drawing by A. C. Conrade.

(See page 210.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

AUGUST 27, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 38 No. 972

"Can Architecture be Taught?"

MR. L. MARCH PHILLIPPS'S most recent sermon delivered apparently for the joint delectation of architects and the untutored public (vide the "Morning Post" of August 20th), shows him unrepentant in his curious architectural heresies. Sensitive as we are to the author's singular charm of style, we cannot but voice our deep disappointment at the absence of that clarity of vision which distinguished him when he wrote his delightful volume, "The Works of Man." In those earlier writings Mr. Phillipps called forth our admiration for the sympathy and insight with which a cultivated layman could invest the subject of the mother of all the arts. Now comes disillusionment, and scarcely can we persuade ourselves that this champion who has entered the lists against the new movement for the education of architects is really the same as the gifted student and writer who has earned our gratitude so fully in the past.

The reasons underlying the strange contradiction are evidently psychological—they lie deep in the mental attitude and prepossessions of the author himself. Interesting as a study of them would be, we are not concerned with them here, but only with the opinions which he sees fit to express. Mr. Phillipps is obsessed with the idea that the *methods* of those who design in what used to be called the Classical or Renaissance taste are merely scholastic and moribund. He refuses to allow that the Classical style has any real connection with the realities of modern life. Having thus arbitrarily closed the door on the greater part of European architecture, he is thrown back upon the Middle Ages. He talks with the *naïveté* of William Morris and the most bigoted of the Gothic revivalists "of the pleasant feeling of sympathy which was established between hand and material." He repeats all the delightful fallacies which suggest that the power to design a cathedral was the result of an inveterate habit of hewing stone, or indulging in the gentler task of chip-carving. And he cries for a return to this fabled period when intent gazing on the material evoked the most wondrous inspiration, and when ceaseless plodding at a craft was the only passport to the artist's Olympus. No wonder his last sentence comes as a fitting climax: "By and by, we shall have them taking the first decisive step and insisting that half an architect's training shall consist in practical bricklaying. *The rest will come of itself.*" (The italics are ours.) Such are the methods, he tells us, which raised the fanes of Lincoln and Westminster! Now is this what we have a right to expect from one who says in another place: "One must not expect to get out of art more than art can get out of life"? Where is his erstwhile magnificent doctrine that art mirrors life, and in it can be seen the history of the nations? If life is truly the fountain of art, if from the death of a man's thought and emotions comes the inspiration which makes the shaped stone live and the houlded wood speak to us, why does he not see that the poverty of our modern design (if poverty there be) is merely reflected in the poverty of our life and its ideals? Probably he does see it, but being a latter-day

prophet he must not leave it at that; he, the historian of the living idea, must become the evangel of materialism in its most eccentric form, and add his meed of praise to those who think themselves wiser than their fathers.

In this exhortation to the architect to spend his precious hours in wood-carving and bricklaying, Mr. Phillipps is repeating a cry which has been raised for the last fifty years, and he of all people comes forward as the last surviving exponent of a dying cause. If mere familiarity with the material and the methods of laying bricks should make us an Oxburgh Hall or a Layer Marney Towers, why in all conscience have not a thousand bricklayers achieved similar things in the past century? With the abnormal increase in house building, hundreds of square mile of suburban houses have been reared by actual carpenters and bricklayers turned speculative builders. Where is the beauty which the ceaseless acquaintance with material has brought forth? It is no answer to say that the industrial conditions are against the workman, for there are numerous opportunities for a man to do according to his fancy, as in the inevitable carved capitals to the angles of the typical suburban bay window. "Bricks and wood," we are told, "when use has instructed us into their nature, seem more than mere inanimate matter. Handling and manipulating them we become aware of the ideas and possibilities which inhabit them." Ought we to have to point out to a child that such ideas emanate from the mind of the man who feels an ambition to do something with the material, to *express* something; and not from the material itself? If you live in a period when art is one of the common possessions of men you will find every workman with a quota of this feeling and a power to interpret the masterpieces of his leaders—the architect or the designer.

But listen to this: "The master-minds of the Gothic era were simply the most efficient craftsmen and the representatives of a tradition and stock of knowledge shared by all builders; the master-mind of the later epoch was out of touch with the whole system of labour, knew nothing of its inspiration, but depended wholly on the academic study of Classic models and designs. Has the reader the contrast sharp in his mind? On the one side of a date an architecture rising out of a collective effort of the labour of the whole country: on the other side an architecture dictated by professors after studies in the Forum or on the Acropolis."

The misconception and misreading of history shown in these paragraphs is astonishing, but it is somewhat illuminated by Mr. Phillipps's question, "Can architecture be taught? Does our experience justify us in relying entirely on the academy and not at all on the collective intelligence of labour?" Here, indeed, is room for the humourist; and surely the pages of "Punch" should treasure that last phrase. Mr. Phillipps has mistaken Gothic architecture for democratic architecture, and the wondrous artistic monuments of the Christian Church, which held all men's powers and services in fee, he attributes to the "collec-

tive intelligence of labour," and, moreover, still believes that this collective intelligence exists! This sort of reasoning is on a par with his praise of the guilds, whose "main purpose," he tells us, "was to quicken and enhance, to collect, and to preserve for future service all that practice could divine of the uses of material" (!) —the guilds, who, in cold reality, were chiefly anxious to secure a monopoly of trade, to raise the price of labour, and who succeeded in making each period of Gothic a decline upon the preceding one. The exquisite beauty of the thirteenth century dawn of Gothic was no more brought about by the guilds than by any other materialistic force; it was more than anything else Cistercian in origin; it was the great reform of religion expressed in stone. And, all through, the prelates of the Church, the monks, the nobility were the leaders, and often the *architects*, of those great works of the Middle Ages, inspiring and controlling their master-masons and builders.

Mr. Phillipps has not guessed at the true impulses at work in the Mediæval period, and he has shut his eyes deliberately to all the great achievement since. He would no doubt repudiate the fact that Gothic architecture was a strange and romantic interlude in the sequence of building. Yet it is no less true that, as we have remarked elsewhere: "the only event of supreme importance in the long history of Classical architecture from the time of the Greeks to the present day is the irruption of Gothic during the thousand years or so of the Middle Ages. European civilisation, if not also that of the whole world, is at bottom Hellenic, and as far as we can see architecture will continue to mirror this generic 'Classical quality.'" If Mr. Phillipps had eyes to see he would perceive that the Classical style is closely in touch with the life of the present day, and its conventions, which he deprecates and misunderstands, are part of its very being. That the age is more interested in science and machinery than in art is a temporary phase, though an unfortunate one. The educationists are somewhat tardily correcting this; they are on the right track, and their work will succeed because they do indeed attempt to wed architecture to life in the only practicable and intelligent way.

W. H. G.

Labour Difficulties in London.

AT the moment of writing, London is threatened with serious labour difficulties. A strike against non-union labour has occurred (but has now been settled) on the new hotel that is being built for Messrs. Lyons in Glasshouse Street; and, as the result of a ballot, the London painters ceased work last Saturday by way of emphasising their demands for an increase of threehalfpence an hour, a code of working rules, and the recognition of their union—the London District of the National Amalgamated House and Ship Painters' and Decorators' Society. The painters declare that their strike is not sudden and capricious, as they have been vainly endeavouring to obtain recognition for the past two years. This blessed word "recognition" is as strong on its sentimental as on its practical side. It implies that the men, while by no means overlooking the more substantial advantages of being brought into line with the other trades, are perhaps even more keenly sensitive to the loss of dignity which they suppose themselves to suffer by being kept outside the pale. The play of this sentimentalism—which counts for so much more than is realised by those who would brush it aside with contempt—seems to be indicated in the statement that the men have rejected the very substantial offer by the Master Decorators' Association to increase their wages by a halfpenny an hour next October, with a further halfpenny an hour next April; unless, indeed, they affect to find something obnoxious in the code of rules that has been also offered them; wherein again it is probably their dignity that has been offended. It is

sentiment, based on a rough sense of justice, which brought about the strike against Messrs. John Mowbray & Co. Employers, sentimental enough in their turn, afford pious horror at the tyrannical spirit that is assumed to actuate men who refuse to work with non-unionists. But, after all, is it not perfectly natural for the unionist who parts with a considerable percentage of his earnings in contributions to trade-union funds, to regard with strong disfavour, not to say bitter enmity, a man who benefits by trade-union propaganda without putting a penny into the war-chest? Here it is the spirit of the thing that the men chiefly regard. They want "recognition" from men as well as from masters. They consider that the workman who will not throw in his lot with them is meanly evading his responsibilities, and is altogether out of sympathy with them. What wonder if they show—not always very delicately—their want of sympathy with him? If these points are calmly taken into consideration on the employers' side, we may look for a speedy and an amicable settlement of difficulties that, unless they are tactfully and temperately managed, may easily get out of hand and involve the industry in unnecessary trouble and loss.

"A Political Ministry of the Fine Arts."

UNDER this title Mr. Mark H. Judge, A.R.I.B., has reissued in leaflet form a letter (originally addressed to the "Outlook"), in which he strongly deprecates the proposal to create a Ministry of the Fine Arts. His greatest objection is that the formation of such a Ministry "would strengthen the undesirable party system which now controls the political life of the country." Against the project he quotes the more or less emphatic protests of Sir T. G. Jackson, R.A., and Mr. Britton Riviere, R.A.; while, fairly enough, he cites as being mildly in favour of it Mr. W. Colton, A.R.A., and Mr. Bertram Mackennal, A.R.A. Mr. Colton and Mr. Mackennal, however, both realise the danger of setting up a censorship that might do more harm than good, which is the fear that prompted Mr. Judge's letter. He is gratified by such proofs "that we have leading artists who can be trusted to the iron hand of officialism behind the social glamour of a political Ministry of the Fine Arts." This is to assume that the Ministry would be formed and would operate upon the familiar lines that have begotten contempt. It is very true that the history and tradition that may be taken as bearing on the proposal are of such a character as to inspire misgiving rather than confidence, and that the tendency to wrest everything to political purpose was never more prominent than it is to-day. Nevertheless, it ought to be possible to break away from evil example, and, indeed, to turn it to good account. Mr. Judge, it will be observed, introduces the bugbear of socialism, which, truth to tell, is not conspicuously relevant to the present issue, except, it may be, as a reminder that the desire for central control is a reaction against the rampant individualism which has no outlook beyond its own immediate self-interest. It is not "socialism" to restrain the individual from doing for his own supposed benefit something that is manifestly to the disadvantage of the community. No one would dream of stigmatising "socialism" the by-law which prevents a man from building in the middle of the road upon land which happens to be his own property; and yet, when similar means of restraint are sought in respect of offences that are not less potent for injury because they may happen to be less grossly material, this bogey is raised. Some authority that would use without abusing its power to control the amenities of street architecture would be eminently desirable if its proper constitution and appropriate conduct could be reasonably assured; but if it is to come in the questionable shape of a Ministry of the Fine Arts, infected with the virus of politics or the dry-rot of officialdom, we would much rather do without it.

THE SALON D'HONNEUR, TURIN.

[Specially Contributed.]

ARCHITECTS are said to be impatient of historical details; but such an attitude—which for our part we believe to be as rare as it is vain—is assuredly unphilosophical. Architecture and history are clearly inseparable, reacting one upon the other, each with its own peculiar degree of force. This is perhaps the purest sense in which a building can be said to be monumental, and it is the chief sense in which that term can be applied to the French Salon d'Honneur at the Turin Exhibition of 1911. That building, which was generally and generously admired, was inspired by history, and was consciously and deliberately intended to be monumental, as commemorating and expressing the inter-relationship between France and Italy and its formative effect on the latter country.

It was M. Dervillé who, as commissioner for the French section of the exhibition, conceived the idea of indicating, in the design of the building, "the affinities

of the Italian and French peoples, the indissoluble ties which have united them in waging common war against the foes of Italian freedom and independence, the victories they obtained together at the cost of so much bloodshed and the consequent foundation of the kingdom of Italy." The architectural interpretation of these data and ideas was entrusted to M. Albert Guilbert, whose first sketch showing a salon d'honneur in Empire style was adopted almost without modification. The plan shows an octagon enclosed within a square and surrounded by thirty-two Ionic columns, which support a balustraded gallery. The coupled columns forming the inner colonnade are surrounded by Caryatides supporting the ceiling, which is richly decorated (see illustration, p. 206), with figure subjects in the eight trapezoidal panels beneath the octagonal centre-piece, which bears the glorified insignia of the Legion of Honour, and forms a second ceiling, its rich red, blue, and gold lighted by eight windows, which are



SALON D'HONNEUR, TURIN EXHIBITION: TRANSVERSE SECTION. A. GUILBERT, ARCHITECT.

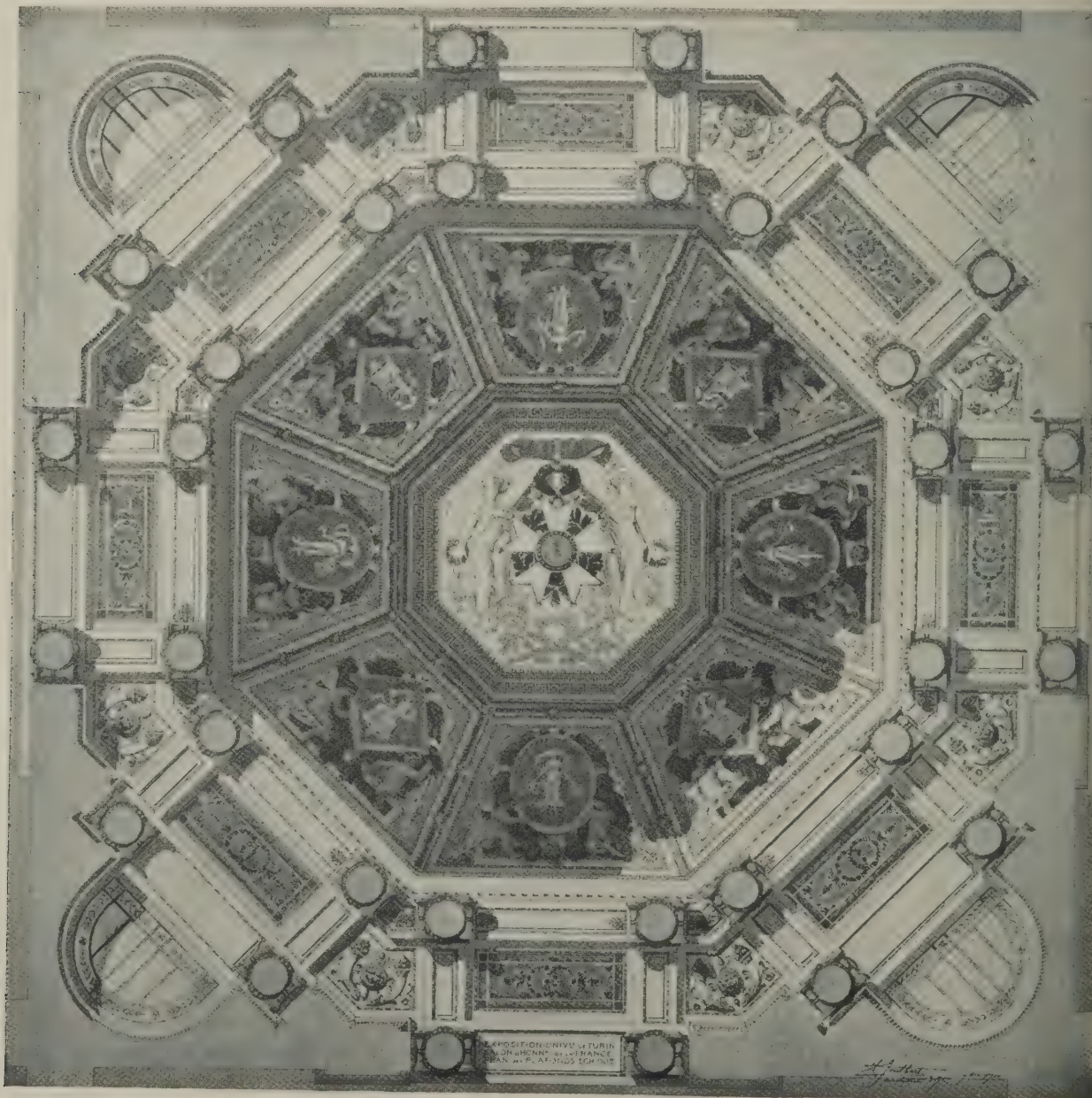
invisible from below. The medallions, alternately oval and lozenge-shaped, garlanded with leaves and supported by *génies*, show cameo figures of Victory, and are reminiscent of the effects beloved of Wedgwood.

At the floor-level four large bays mark the angles of the square. One of these bays—that shown at the bottom of the ground-plan (see Centre Plate)—forms the entrance to the salon from the grand central hall of the French section of the exhibition. The opposite bay—that shown at the top of the ground plan and on p. 205)—is decorated with tapestry representing Bonaparte as First Consul, splendidly attired and riding a richly caparisoned charger. He is said to be "distributing military recompenses." The two lateral bays give access to the historical sections, in which were shown works of art, arms, instruments, books, portraits, historical documents, autographs, and other souvenirs of the old-time alliance between France and Italy. It will be noticed (see plan below) that the rounded projections occupying the angles of the square have glazed roofs.

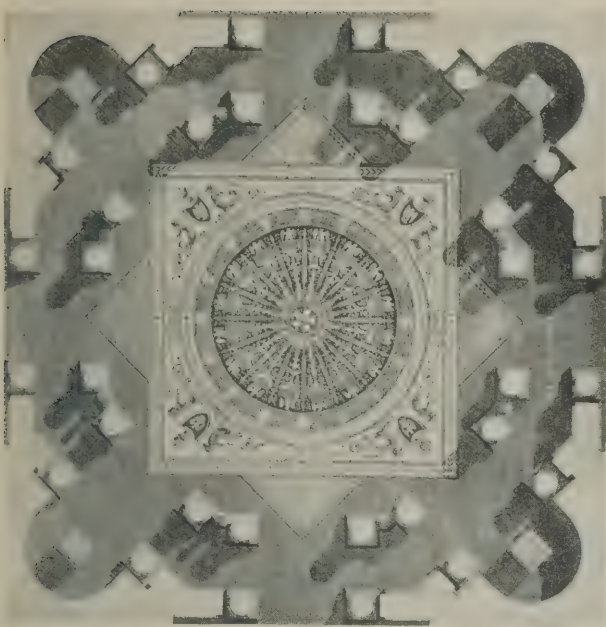
On the upper floor the wall, octagonal on plan, has all its faces pierced for the admission of light; that immediately above the main entrance gives access to the gallery. All the walls on the ground floor are hung with blue velvet richly overlaid with gold folia-

tion. Most of this tapestry was made at Lyons, at 1810, by Grandfrère, at the command of Napoleon, one of the salons of the Palace of Versailles. Part of it is in use in the decoration of the throne-room at Milan, and the portion available was insufficient for the present purpose. Accordingly, MM. Cassard and Tassinari, of Lyons, were commissioned to make the deficiency, and they succeeded in producing a perfectly similar fabric. The dimensions of this magnificent tapestry determined the shape and character of the wall surfaces, and its colouring gave the key for the general scheme of decoration. The ground floor is carpeted with the famous "tapis des Cohortes," which was made to the order of Napoleon at a factory at Tournai. It symbolises the sixteen cohorts which it was intended that the then newly instituted Legion of Honour should comprise.

The niches occupying the angles of the square contain figures of soldiers of Napoleon's armies. They are copied from four of the marble statues by Perc and Fontaine, which surmount the columns of the Arc de Triomphe in the Place du Carrousel, and they represent respectively a cuirassier, a sapper, a carabinier, and a dragoon. Between the coupled columns which have been already mentioned, elegant stone support mouldings of busts (of which the originals are in the Versailles Museum) of French marshals are



SALON D'HONNEUR, TURIN EXHIBITION: PLAN OF CEILING DECORATION. A. GUILBERT, ARCHITECT.



PLAN OF SALON D'HONNEUR, TURIN EXHIBITION.

generals who took part in the Franco-Italian campaigns—namely, Berthier, Bessières, Brune et Lannes, Augereau, Davoust, Desaix, and Ney.

The general colour effect is a sweetly harmonious blend of light cream, blue, and gold, its culminating points being the scarlet ribbon of the Legion of Honour (page 206) and the equally vivid tunic of the Emperor (page 205). In co-operation with the architect were M. E. Dumonthier, the administrator of the Garde-Meuble National, whose knowledge and resources with regard to the tapestry, carpeting, and furniture were invaluable; M. Eugène Piron, the sculptor, who executed the "Victories" which support the central feature (the Grand Cross of the Legion of Honour), and the casings of the Caryatides columns; M. Noël Bruton, who executed the decorative painting; and M. Louis Léothaud, who was responsible for the decorative architectural and sculptured features.

We are in cordial agreement with our contemporary "L'Architecte" (to which we are indebted for the substance of the foregoing description and for the accompanying illustrations), that the Salon d'Honneur at the Turin Exhibition is of much more than ephemeral interest; and we may add that in our opinion the design, as well as the decorative scheme, is exquisitely expressive of the best traditions of French taste, whereof the supreme achievements are not only unexcelled, but unapproachable.

NEW LIGHT ON OLD MATERIALS.

THE remarkable coloured ceramic friezes from the Palace of Darius, now in the Louvre Museum at Paris, have been studied from a technical point of view by M. Alexandre Bigot. In his report, recently read to the French Academy of Inscriptions, he stated that he had discovered the long-sought-for secret of the preparation of these celebrated bas-reliefs.

"M. and Mme. Dieulafoy," he reminded his auditors, "brought back some bricks from the Palace of Susa. Most were enamelled; some still brilliant, others faded by time and weather. Some French manufacturers endeavoured to reproduce these bricks in baked enamelled clay, but no effort had been made to study the raw material of the brick and enamel. This seemed to me indispensable. M. Pottier, Keeper of the Louvre

Museum, placed at my disposal some fragments from: the friezes known as the 'Archers' and the 'Winged Bulls.'

"The enamelled bricks of the 'Archers' frieze are not made of clay, but of lime mortar (*mortier de chaux*), prepared in such a manner that it could be baked, and thus form a strong, solid substance akin to ceramic products. This method is unknown to modern manufacturers of building materials. The Persians prepared the mortar from rather coarse sand and a special lime. It was placed in moulds, then left in the air to dry and harden, and baked at a very high temperature. After removal from the kiln, the bricks were adjusted and retouched, then covered with a solid matter, ground to an impalpable powder, to close the pores of the surfaces to be enamelled.

"The unenamelled bricks, yellowish-rose in colour, in the 'Winged Bulls' frieze, were believed to be terra-cotta. Close examination showed me that they were made with substances containing straw, seeds, rush leaves, etc., traces of these being visible in the openings. I analysed, and again found a lime mortar, unbaked. Inside I discovered seeds and minute straws, almost unchanged by twenty-five centuries. The straw burnt readily when set on fire. This last fact proved beyond doubt that these yellowish-rose coloured bricks had not been baked in a kiln.

"The Persian manufacture of 500 B.C. was therefore not a ceramic industry as generally supposed, but a lime-mortar process carried to a degree of perfection hitherto unsuspected. The friezes of the Palace of Darius were one of the last manifestations of the art, so special and so interesting. There is now no doubt but that the art will be revised, and assume its rightful place in modern architecture."

CORRESPONDENCE.

The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.

Correspondents are asked to be brief, and to write on one side only of the paper

The Peace Palace at The Hague.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—I do not think anyone looking at the photograph of the Peace Palace at The Hague could disagree with your remarks in your issue of August 6th.

One of my clerks is at present holidaying in Holland, and simultaneously upon the receipt of your journal I received a coloured picture postcard from him showing this building in its terrible vivid colours of red brick, white stone, and blue slates. I enclose you postcard for inspection.

You say: "If this be the utmost effort which the idea of peace can bring forth from the architects of the world, it augurs ill for Peace or for Architecture," and you state further that there were 217 architects who took part in the competition, that the body of assessors had very reassuring names, and that it is incredible that this design should have been selected by such.

Before I read your critique I looked at the design for a considerable time and wondered how such a weird Early Victorian structure could have been brought into existence. Is it possible that Mr. Carnegie, who has done so much for the Peace Palace, has been allowed to dominate the decision? There are the Scotch turrets in remarkable evidence and probably the crude colours would appeal to him also. I have no other foundation for this surmise, but I pass it on for what it is worth.

J. H. KERNER-GREENWOOD.

[We presume that our correspondent's "surmise" is intended as a joke. It is therefore superfluous to point out that the turrets to which he refers are not essentially "Scotch," and that there is certainly no just ground for accusing Mr. Carnegie of a crude colour sense.—EDS. A. AND B.J.]

HERE AND THERE.

A CERTAIN popular illustrated paper takes delight in showing us the people to whom it takes off its hat for having enlivened the week's proceedings. Mr. A. C. Benson should certainly be accorded such honour from that section of the public whose unhappy fate it is to struggle on at work through the dog-days (which, let it be recorded, officially ended their course a week and a half ago). At such a trying time the soliloquising but ever delightful gazer from a college window has generously come forward to champion the cause of the let-it-remain party concerning all affairs of art. The case in point concerns the glass which was set up in the chapel of Winchester College in the early twenties of the nineteenth century; which glass Mr. Olaf Carøe now proposes to replace with something of his own choosing which he considers to be more in keeping with the mediæval glass that beautifies the chapel. Around this proposal a merry bout has been going on in "The Times," and Mr. Benson, as the protagonist, has shown us not only how to hit an opponent with the utmost deftness, but, what is more difficult, with the utmost good humour. Others have already culled some of his incisive sentences, but these, when thus detached, lose their full meaning, so now I shall quote him *in extenso*, because, whether we agree with his point of view or not, we cannot but admire the way in which he replies to his critics. Thus, then, the *littérateur* with a shrewd knowledge of the ethics of art:—

"I do not for an instant question the excellence of the 'copies' which Mr. Carøe hopes to substitute for the present glass, though, indeed, I do not quite know of what they are going to be 'copies'; there are three panels of the original glass at South Kensington, some similar glass at New College, and the unfortunate windows themselves, which Mr. Carøe calls caricatures, plagiarisms, and atrocities. In what sense can any copies be produced? I do not quite gather from Mr. Carøe's letter whether he is going to produce the glass himself or aid some mere craftsman with his own good taste and his powers of sympathetic exhortation. But however good it may all be, it will still be what is ordinarily called a 'fake.' It is an attempt, more or less, to reproduce the effect not of the old glass, but of what connoisseurs think the glass might by this time have looked like. Now this sort of reconstruction seems to me in the highest degree uninteresting. There is something, not much, to be said for destroying old work and substituting original work; the mediæval builders did it freely, but I do not think that there is anything to be said for substituting one imitation for another. I should have resisted with all my might the 1821 glass being substituted for the old if I had been then alive, and I can assure Mr. Carøe that if he now gets his glass into the chapel, and if his taste, excellent as it is, should ever go out of fashion, I shall plead for the retention of his windows, if I am alive, as earnestly as I plead for the existing windows to-day.

"For my point is this, that taste is a very fleeting and unreliable thing, while historical continuity and traditional interest are not. I do not myself think the present windows ugly, and I think them extremely interesting and characteristic. The only safe rule, it seems to me, considering the perpetual fluctuations of artistic taste, is not to remove artistic decorations at all.

"A hundred and forty years ago the Provost and Fellows of King's College, Cambridge, took down the fine Jacobean panelling round their altar and got Essex to design some Gothic woodwork. About this woodwork Horace Walpole, as supreme an arbiter of taste in his day as Mr. Carøe is in this, wrote:—'I dote on Cambridge and could like to be often there. The

beauty of King's College Chapel, now it is restored, penetrates me with a visionary longing to be a monk it.' What has now happened? In the last twenty years the whole of the Essex woodwork has been swept away again, and at immense expense panelling, of the style of the previous panelling, has been substituted. It is the same all along. When I was a child Georgian houses and Georgian furniture were thought horribly ugly, and under the auspices of Ruskin and Morris a variation of Gothic had a vogue. And it is to be noticed that it is almost always the purists who are most restless in their destruction of the work of their predecessors. Horace Walpole in one age, Ruskin in another. Mr. Carøe in the present century are all equally sure that their taste is impeccable, and that their reconstructions are reliable. 'Codlin's the friend, not Short.' But the only safe rule would seem to be to leave things; almost everything that has ever been removed in a spirit of good taste by purists has come to be regretted, and if one can but dare to leave any decoration long enough, it seems sure to come into favour again. For a time it is an atrocity. Then people say they don't really mind it very much; then they say that it has a sort of character of its own; then it becomes quaint, then fine, then beautiful, and finally sacred. That seems to be the evolution of taste. . . ."

* * * *

From the foregoing it will be seen that Mr. Benson has got home some hard thrusts. Few of us ever entirely agree with anybody else, and so it happens that in the present instance, while I am much more sympathetic with Mr. Benson's creed than with Mr. Carøe's, I cannot embrace it wholly. After all, if we are to do anything worth doing we have got to have some convictions of our own, and to have the courage to act on them, even though they may be sometimes of a destructive kind. The other fellow may be right (or as wrong) as we are, but I cannot see that things are advanced by a policy of tolerance which amounts to self-annihilation. The Gothicists, as we are always so ready to say, were too sure of themselves in their own opinion; nevertheless, they were far better than many architects of to-day who are so broad in their sympathies, and so anxious to see things from the standpoint of others, that all governing ideas are lost, and they merely drift from one vogue to another. Mr. Benson is, I think, too timorous, Mr. Carøe too certain of his own taste. The result of such opposing views must necessarily be rather chaotic, but the discussion raises several points of great interest, chief among them the question of fashion in art.

* * * *

Now, let us not blind ourselves to the fact that we all come very much under the influence of Fashion. We can see around us, if we will, as many vagaries as ever the mid-Victorians did. The difficulty is to judge of our own work, or even that of our contemporaries impartially. Is there not a fashion now for a return to Greek models? And who shall say that Mr. Lutyens' way is not a very pronounced fashion? Finding ourselves thus influenced, our sole hope of securing anything like a sure footing lies in dealing with architecture in the most logical manner possible. It is precisely on these grounds that I admire the sane houses that Mr. Ernest Newton produces, houses which certainly are excellent to live in and which are free from a manner of quips and fancies which may tickle us for a moment but which soon pall.

Yes: while Fashions are merely ephemeral, underlying them, and often most fantastically obscured by them, are the principles that abide for ever, and these were all known to the Greeks.

UBIQUE.

TWO NEW GOVERNMENT BUILDINGS.

The New Stationery Office.

NEAR the Royal Waterloo Hospital for Children and Women, in the Waterloo Road, London, the large new premises which have been designed by the Office of Works for His Majesty's Stationery Office are nearing completion. The premises consist of two portions. The block which is composed of the offices and rooms of the officials of the Department has its frontage in Waterloo Road, but the Stationery Office, which is a great storehouse, and forms by far the larger of the two portions, has its extended frontage in Stamford Street. The point of the right-angle formed by the junction of the two thoroughfares is occupied by the hospital. Unfortunately for the designers of the building, Bazon Street runs parallel with Waterloo Road on the east side, and constitutes a right of way. Consequently, it has been impossible to erect the building in one solid block. That difficulty has, however, been overcome by building the lower parts of the two portions separately, nevertheless retaining the physical junction by carrying the uppermost floors across, thus forming an arch over the roadway. The gas, electric lighting, and central heating will be single systems for the whole building, the necessary pipes being laid under the roadway by a subway.

In the construction, reinforced concrete has been employed throughout. There are eight floors in the officials' block, and seven in the Stationery Office proper, including ground floor and basement. In the officials' block the partitions have been formed of light bricks, so that at any time two or even three rooms could be thrown into one without damaging or weakening the structure. The other part of the building, being designed to answer the requirements of a storehouse, is not split up into rooms. The floors are supported on pillars, which run from the basement, where they rest on a solid concrete bed, right up to the roof, and across from pillar to pillar are beams. In the basement and on the ground floor the pillars are designed to carry three hundredweight per foot super., and those on the other floors two and a half hundredweight. The core of the pillars is formed of steel rods, in the lower floors one and a half inches in diameter and above five-eighths of an inch. One is dropped down on to the top of the other, so that there are continuous lines of steel in each pillar from the concrete bed below the floor of the basement right up to the roof. The floors are of concrete three and a half feet thick, and on top is spread a layer of granolithic made of granite chips. The flights of stairs are all made of concrete, and there are, in addition, a number of lifts so arranged that on the ground floor the carts carrying the goods can be driven in and their contents emptied directly on to them. In the officials' block, which is to have a frontage of stone, there will also be passenger lifts.

The gravel comes from the Thames estuaries at Richmond, the cement from Gravesend and Grays, and the sand is either pit or Thames sand. Messrs. Perry and Co., Ltd., of Bow, are the contractors. It is expected that the building will be finished and ready for occupation by the middle of next year. It would have been almost, if not quite, completed now but for the labour troubles of last year. The coal strike and the transport workers' strike, and the consequent dislocation of business during and after these cessations of labour, made it impossible for the materials to be brought, and in all about six months were lost.

The New Science Museum, South Kensington.

The new Science Museum which is to be erected in South Kensington will, when completed, extend from Exhibition Road to Queen's Gate, between the Natural History Museum and the Imperial College of Science. With the exception of the one now being erected at

Munich, this will be the first building specially constructed for a Science Museum.

The eastern block is the first portion to be proceeded with, and tenders are now being obtained. It will occupy, approximately, one-third of the site, the remainder of which will be left for future extension. When complete the exhibition space will consist of three large roof-lighted halls, 200 ft. by 100 ft., with surrounding galleries on the first and second floors lighted partly from the sides and partly from a central lighting well 126 ft. by 40 ft. and 78 ft. high. These large halls will be connected by entirely side-lighted galleries. Other galleries will be provided on the third floor extending over the whole building. The eastern block will contain one of the three roof-lighted halls, with a block of galleries to the north and a portion of the connecting galleries to the west. The Museum offices, with a conference room and an entrance from Imperial Institute Road, will also be proceeded with at once, and Museum workshops, with storage space for exhibits, will be provided in the basement. The principal entrance to the eastern block will be from Exhibition Road, and when the building is complete there will be another entrance from Queen's Gate. Arrangements will also be made for a public entrance to the Museum from the existing Metropolitan District Railway subway to South Kensington Station.

The ground floor galleries will be about 22 ft. in height and the remainder about 20 ft. Throughout the gallery windows will be about 7 ft. above floor level so as to afford uninterrupted wall space for exhibit cases. The total floor area for exhibition purposes to be provided in the complete building will be about 377,500 superficial feet.

Electric lifts, placed in the staircase walls, will be provided for the use of visitors, and access to the various galleries will be made as direct and easy as possible.

The structure generally will be reinforced concrete with external walls of stone and bricks. The façade to Exhibition Road, and part of the south front, will be faced with Portland stone, excepting the entrances and the lower balustrades, which will be of granite. The roof slopes will be covered with small green slates, and the windows throughout will be provided with metal sashes.

In the architectural treatment of the exterior, which is in the Renaissance style, efficient lighting of the galleries was the chief factor to be considered, and, in view of the purpose for which the building is to be erected, a simple and dignified result has been aimed at by the architect, Mr. R. J. Allison, A.R.I.B.A., of H.M. Office of Works.

A CRITICISM OF KINGSWAY AND ALDWYCH.

NO matter how seldom it is possible to be in entire agreement with Mr. P. G. Konody's prolific judgments on current art and architecture, it is impossible to deny him the virtue of candour. He "speaks out" with characteristic freedom on Kingsway and Aldwych in an article contributed to the "Observer," although, for once in a way, the occasion seems, on the whole, to have caught him in an admiring mood.

Kingsway and Aldwych, he says, as they now present themselves, are unquestionably the typical expression of the spirit that animates twentieth-century English architecture—a spirit of restless ambition, fired by knowledge of the masterpieces of the past, but neglectful of present-day requirements. Most of these buildings of the "modern English Renaissance" lack a basis of logical construction: they spring from arbitrary invention—or, perhaps, it would be more correct to say, they are the outcome of the arbitrary combina-

tion of architectural motives that happened to linger in the architect's memory. Some of these buildings, taken by themselves, have a certain dignity of proportion, but throughout there is a painful disregard of scale, as though each building had been designed without reference to its neighbours. And nearly everywhere one notices the absence of refinement and distinction in the ornamental "trimmings," which generally seem to hang from the plain wall-surface like so much dead weight.

The Gaiety Theatre, Mr. Konody holds, cannot be said to be in scale with the beautiful island church in the Strand or with Somerset House. The "Morning Post" building on the opposite corner is in much closer relation to the scale of the church, and is, therefore, on the whole, more satisfactory. When it came to the building of the block comprising the huge Waldorf Hotel and the two flanking little theatres, the L.C.C. had apparently given up all hope of securing uniformity of scale.

Still, in spite of these incongruities, there is at Aldwych some attempt at retaining a certain unity. Kingsway, on the other hand, is built without any consideration of scale, each building trying to assert itself without heed of its neighbour. To begin at the Holborn end, Mr. Belcher's new façade of Holy Trinity Church, though still waiting for the tower which is to be eventually added, is an effective enough design, with large plain surfaces that give value to the decorative motives.

The other buildings on the right, going down towards the Strand, come more or less under the heading of pure commercialism in architecture. How much they are lacking in distinction may be gathered from the fact that the very plain and featureless Kodak building, with its straight lines and lavish display of glass, is by far the best of all the "business palaces" that have been erected on this site. The Kodak building at least betrays its utilitarian purpose and is innocent of coarse or tasteless trimmings.

On the opposite side, Mr. Lutyens's "Lincoln's Inn House" is unquestionably the most distinguished building. The details and mouldings are admirable and marked by real refinement. Yet there is about the whole design a wilfulness and arbitrariness, a twisting

of familiar forms into new combinations, that are incompatible with real purity of style. In some ways Lincoln's Inn House holds a suggestion of the "topsy-turvy house," the first two floors being proportioned like attics and crowned with a boldly projecting cornice, above which rises the lofty and imposing third floor, thus reversing the natural order of things.

The façade of the church of SS. Anselm and Cecilia Mr. Konody finds "altogether insignificant." Nor is it possible to grow enthusiastic over the London Opera House, which, the critic declares, has nothing in its favour but its imposing bulk.

OUR PLATES.

Tomb of the Duc de Brézé, Rouen Cathedral.

THE tomb of the Duc de Brézé, in Rouen Cathedral, of which a fine drawing, by Mr. A. C. Conrade, is given as the frontispiece in this issue, is a splendid specimen of French Renaissance architecture before the beginning of the decadence. The figure between the columns to the left is believed to be that of Diane de Poitiers.

Brick Buildings at the Vyne, near Basingstoke.

The grounds of the Vyne, near Basingstoke, contain the two curious brick buildings illustrated upon this and the opposite page. These are said to have been designed by Webb. They represent a successful attempt to express in rather clumsy materials the idea of small Classic domed buildings. The lodge is the more austere of the two, none but plain rectangular bricks being employed. In the pigeon house, however, the severity is relieved by a few moulded members. The domed roofs are covered with small tiles.

Chimney-piece in the Northern Conservative Club, Newcastle-upon-Tyne.

We illustrate on page 213 a chimney-piece contained in the dining-room of the Northern Conservative Club, Newcastle-upon-Tyne, recently erected from the designs of Messrs. Cackett and Burns-Dick, F.F.R.I.B.A., of Newcastle. The dining-room, which is situated on the ground floor, is the most important room in the building, measuring about 64 ft. long by 27 ft. wide, and being lofty enough to provide a mezzanine floor with a gallery overlooking the room.

Design for the Port of London Authority Offices.

On page 215 we illustrate a new perspective drawing of Messrs. Wallis and Bowden's premiated design for the new offices of the Port of London Authority. Messrs. Wallis and Bowden, it will be remembered, were among the six architects whose designs were selected in the sketch competition, and who were invited to submit finished drawings in the final competition. The façade is decorated with a Roman Doric colonnade, and above the blocking is a central tower with an open colonnaded storey; a stepped podium above carries a large model of a ship. The design is conceived on bold masculine lines throughout.

Salon d'Honneur, Turin Exhibition.

The Salon d'Honneur in the French Section of the Turin Exhibition, erected from the designs of M. A. Guilbert, and illustrated on the Centre Plate in this issue, is described in the article beginning on page 205.

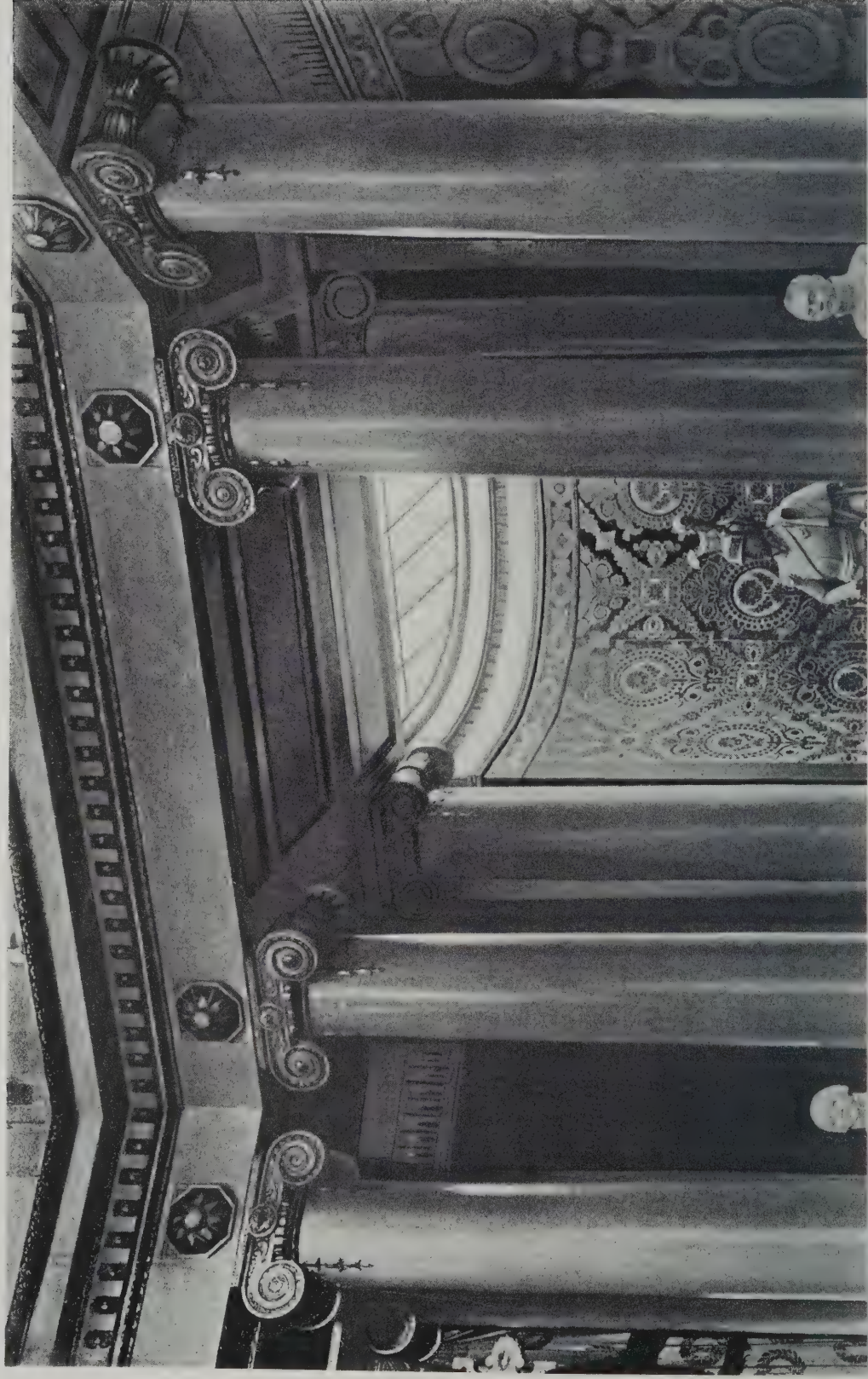
National Library of Wales, Aberystwyth.

We illustrate on pages 216 and 217 a working drawing giving details of the east elevation, etc., of the manuscript block of the National Library of Wales, Aberystwyth, now in course of erection from the designs of Mr. Sidney K. Greenslade, A.R.I.B.A. Mr. Greenslade's design was awarded first place in a limited competition held in 1909. The general composition of the elevations is of a monumental and dignified character, a pleasing néo-Grec quality being exhibited in the details.



LODGE AT THE VYNE, NEAR BASINGSTOKE.

Supplement to THE ARCHITECTS' AND BUILDERS' JOURNAL, Wednesday, August 27th, 1913.





DETAIL OF SALON D'HONNEUR, TURIN EXHIBITION, 1911: FRENCH SECTION. A. GUILBERT, ARCHITECT.



PIGEON-HOUSE AT THE VYNE, NEAR BASINGSTOKE.

(See page 210.)



CHIMNEYPiece IN DINING-ROOM, NORTHERN CONSERVATIVE AND UNIONIST CLUB, NEWCASTLE-UPON-TYNE.
CAKETT AND BURNS-DICK, FF.R.I.B.A., ARCHITECTS.

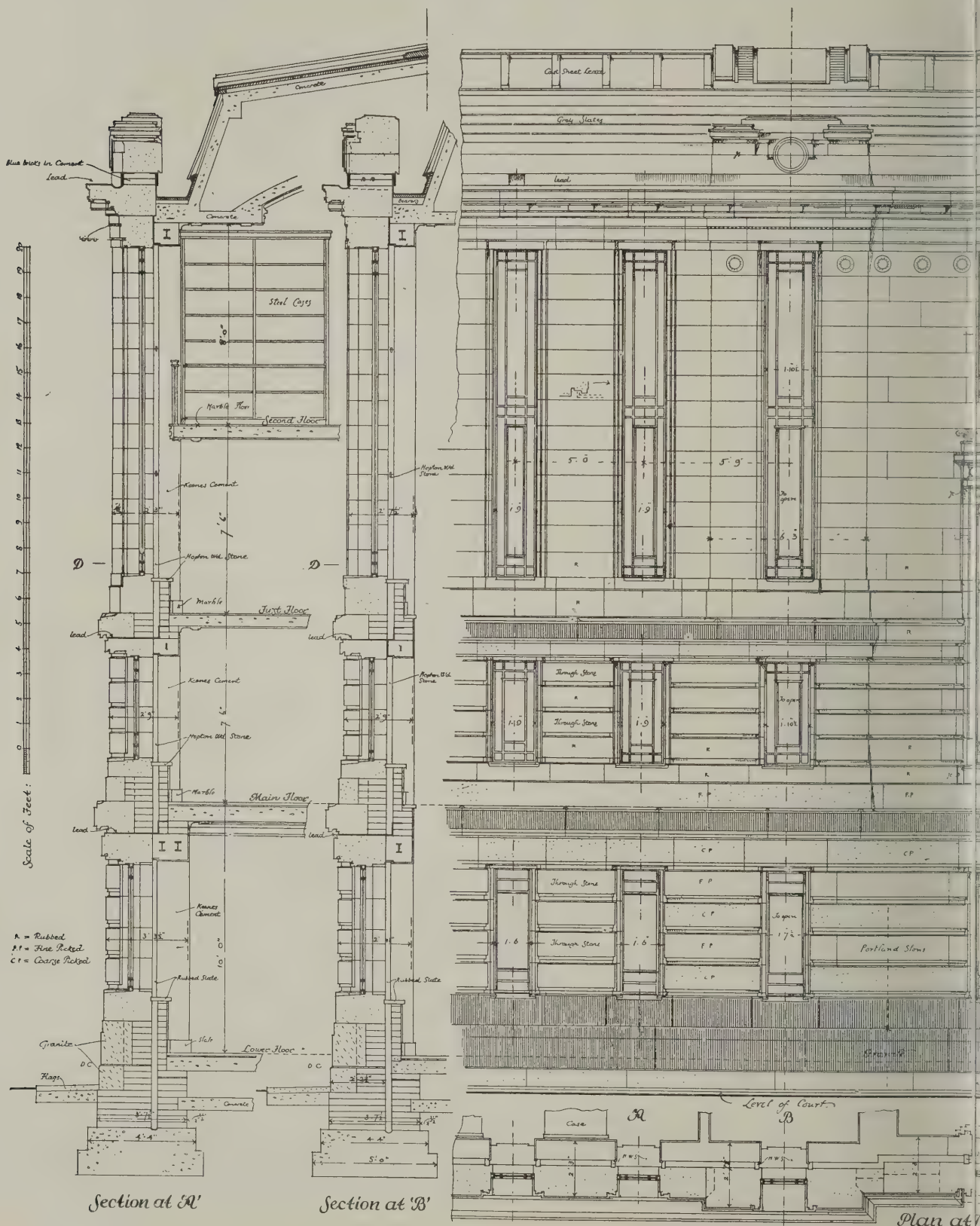
(See page 210.)



DESIGN FOR NEW OFFICES OF THE PORT OF LONDON AUTHORITY.
WALLIS AND BOWDEN, ARCHITECTS.

(See page 210.)

The National Library of Wales, Aberystwyth.

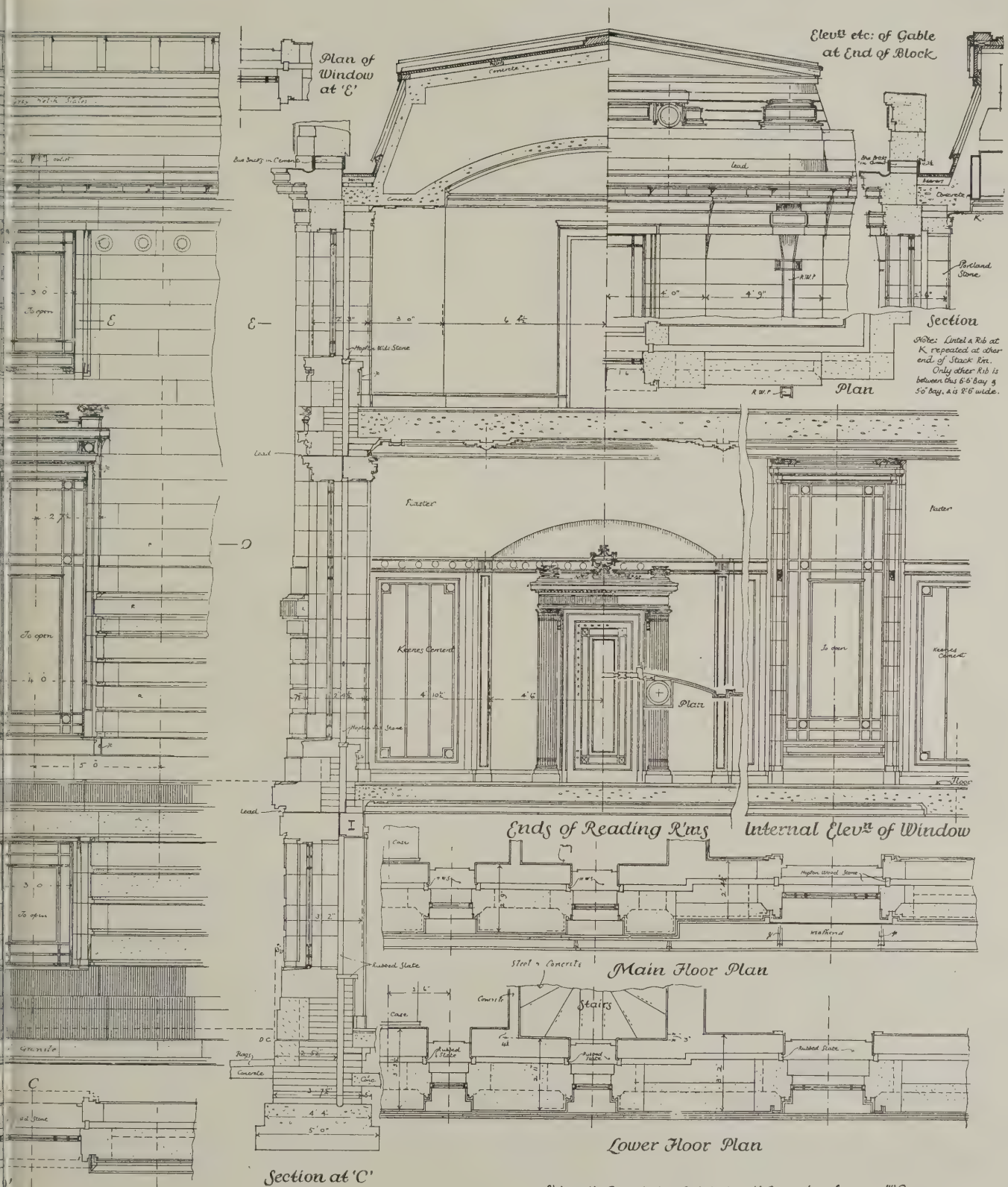


WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS. XXXVI.—THE NATIONAL LIBRARY
SIDNEY K. GREENSLAND

(S.P.)

Details of East Elevation etc of Manuscripts Block

No 31



Sidney K. Greenslade, Architect, 11 Gray's Inn Square W.C.

OF WALES, ABERYSTWYTH: DETAILS OF EAST ELEVATION, ETC., OF MANUSCRIPTS BLOCK.

E, A.R.I.B.A., ARCHITECT.

THE R.I.B.A. FINAL EXAMINATION: MODEL ANSWERS.

BY C. PERCIVAL WALGATE, A.R.C.A., Lond. (Architecture), A.R.I.B.A., Grissell Medallist, 1910, R.C.A. Travelling Scholar.

(Continued from page 194, No. 971.)

SUBJECT (d).—THE PROPERTIES AND USES OF BUILDING MATERIALS.

$2\frac{1}{2}$ hours allowed. Six questions to be attempted.

1. What form of foundation would you employ in building over a site covering a disused coal, salt, or other mine or subterranean excavation which might cause the subsidence of the surface? Give a list of the materials, their qualities and defects, and describe how you would use them.

Answer.—In the case described, a reinforced concrete raft would be the most suitable foundation. It should have a system of beams and tension members at both top and bottom, with stirrups connecting the two, so that any part can resist either an upward or a downward stress. This will ensure that if the site subsides the building will settle uniformly.

Materials used: (a) Portland cement. A slow-setting quality to be used, 97 per cent. of which will pass a sieve of 76×76 meshes per square inch, and $77\frac{1}{2}$ per cent. a sieve of 180×180 meshes per square inch. Made neat into briquettes, it should maintain, after seven days' immersion in water, 400 lbs. per square inch; and after 28 days', 500 lbs. per square inch. Immersion to commence within 24 hours of the making of the briquette. If the cement contains coarse particles, their retarded slaking will cause it to "blow." Underburning gives economical manufacture, but the strength attained is less.

(b) The aggregate, gravel and sand graded down from 2 in. diameter. The proportions to be fixed so that with the cement a compact mixture is formed. The aggregate must be free from earthy or organic matter and from salt.

(c) The reinforcement, steel bars used in small sizes in order that the proportion of surface to sectional area may allow the bar to take up its full working tension without slipping. Mild steel is used, as it is more reliable in quality and easier to bend than high-carbon steel. It should have an ultimate strength of 27 to 31 tons per sq. inch with an elongation of 20 per cent.

2. What are the considerations that would affect your selection of materials for the facings of a building in a city? Compare stone, brick, and terra-cotta, and state the special qualities you would look for in each.

Answer.—(a) Durability, (b) Applicability, (c) Aesthetic Suitability, (d) Economy.

Stone.—Limestone and sandstone buildings are rapidly perishing all over London, but for ordinary work their life of 70 or 80 years is sufficient for the need. Granite is very durable. The difficulty of working it and its consequent heavy cost are not now so formidable, since it is cut, moulded, and carved by machinery. It has been very satisfactorily and economically applied to steel frame structures. Stone is notably applicable, as its use is backed by long and almost universal tradition, and it is obtainable at short notice in large quantities. It should,

however, be very carefully selected. Stone is generally regarded as the appropriate material for important structures, and it has a peculiar suitability because most of our architectural forms have developed in it. In ordinary city building, stone is the most expensive building material.

Brick.—Brick, when rich in silica, is a most durable material. The buildings in which Wren used it still show sharp arrises where friction has not been suffered. That architect proved its applicability to city buildings, but it is somewhat clumsy when used for orders and mouldings. Popular fancy is against its appearance for important structures, but professional opinion is more favourable to its use. Brick is the cheapest material, owing to the ease with which it is handled, and abundant supplies can be obtained whenever required.

Terra-Cotta. — Terra-cotta, when perfectly burnt, has a hard face which resists fumes or friction very well, but it is subject to flaws, and does not bear fire or accidental blows well. It can be moulded into any shape desired, but the delay occasioned in replacing pieces spoiled in burning makes it unsuitable for rapid building. Its manufacture has much improved of late, and straight mouldings and well-fitting joints can be reasonably expected. It is obtainable in many pleasing colours, notably milk-white, and as a facing to reinforced concrete or steel-framed structures promises to have a great future. Its cost is midway between that of brick and stone.

3. Describe the structure of four building stones you are acquainted with, and show how the strength and durability of each stone are affected by its structure.

Answer.—The nature of a stone depends upon its formation, igneous or sedimentary, and upon its constituents, the chief of which are:

(a) Quartz (silica), harder than steel.

(b) Felspar (silicate and aluminate of potash or soda), as hard as steel. When felspar is chemically unstable it degenerates into kaolin.

(c) Mica (silicate and aluminate of magnesia, potash and lime), easily scratched with a knife.

(d) Calcite (carbonate of lime), found in various forms.

TYPICAL STONES. Granite.—An igneous, crystalline formation of quartz and felspar with mica. It is the hardest stone used for building. Aberdeenshire granite has stable felspar, but Devonshire granite is partially degenerated.

Craighleith Sandstone.—A fragmental formation of quartz and felspar—the detritus of older rocks. It is the hardest sedimentary stone in Britain.

White Mansfield.—A sedimentary stone formed of compact crystals of calcite and dolomite (carbonate of magnesia). Its formation makes it resist pressure well, but its constituents are easily attacked by fumes.

Ham Hill.—A sedimentary stone con-

sisting of calcite in the form of shell fragments. In this case the material is hard but the structure is weak. It resists fumes, but crumbles under pressure.

4. Describe briefly the various kinds of timber used in building, the purpose for which each is best fitted, and the defects each is liable to.

Answer.—(a) Northern Pine, Red or Yellow Deal.—Most used for carpentry, strong and hard, has a few large knots. It does not bear damp well; subject to loose knots, shakes, and cracks.

(b) Spruce Fir, White Deal.—A fine, silky wood with many small, hard knots. Principally used for scaffolding, centering, etc., because of fibrous nature, and table tops, joinery, and floors, not heavily used. Subject to resinous streaks, loose knots, and wet rot through bad handling, but not to dry rot.

(c) American Pine, American Yellow Deal.—A soft wood of large growth and free from knots. Used for panels, mouldings, and patterns for casting. Subject to cup shakes and dry rot.

(d) Pitchpine.—A heavy wood with a strongly marked grain. Few and large knots. Used for carpentry because of great length and strength; for treads, etc., because of hardness, and generally for good appearance. Subject to shakes.

(e) Oak.—A tough and durable wood with conspicuous medullary rays. It possesses tannic acid, which resists pests but destroys iron or zinc nails, etc. Used for sills, steps, etc., on account of hardness; in joinery for good colour and beautiful grain, and for fire resisting. Subject to deformities of growth.

(f) Elm.—A coarse, tough wood with numerous knots. Warm brown in colour with a purple tinge. It is used for foundation work where it will be constantly wet, and for stable fittings because horses will not chew it. It warps badly in use, and is subject to weather decay during growth.

(g) Mahogany.—A hard, reddish wood, with a fine grain. Heavy and well figured quality from Cuba, light and straight grained from Honduras. It is strong but rather brittle. Used for joinery and fittings, and accepted as fire-resisting.

(h) Teak.—A dense, straight-grained wood of a warm brown colour tinged with yellow. It is imported from Burma, and used in fire-resisting work very largely, and also for water-resisting in butlers' sinks (lead-lined), etc.

5. Give the various properties of cast-iron and steel used in the construction of buildings, and the purposes for which each is best suited. What tests do you apply in the selection and passing of each kind?

Answer.—Cast Iron is hard and brittle. It is easily cast into complicated shapes, and leaves the mould with a "skin" of crystalline iron which is harder than the inner portions. It is very suitable for cheap fire-grates, ornamental railings, etc., rainwater goods, and water and drain pipes. A casting should not be passed

unless it is true to shape and thickness, and free from holes, cracks, and rust. Any attempt to fill up or file away a defect would justify rejection.

Steel.—Mild steel is now generally used in the construction of buildings. The process of manufacture (rolling) makes it very free from defects, and the average value allowable for its ultimate strength is 64,000 lbs. per sq. inch in either tension or compression. These facts make it eminently suitable for structural work in the form of I-joists, rods, or columns. The best way of getting good steel is to deal with a British manufacturer of good reputation. The sections should be the full dimensions specified, and free from blister and mill-scale. A satisfactory specification might run:—
 "All steel to be of British manufacture produced by the Siemens-Martin open-hearth process having an ultimate tensile strength of not less than 28 tons per sq. inch, with a contraction of the area of fracture not less than 40 per cent. and an extension of length not less than 20 per cent. Rivet bars should in addition bend double, hot or cold, without showing cracks."

6. Give a schedule arranged in order of durability, and the cost of various materials used for roofing purposes; and the qualities of each kind, the way in which you select each kind, and the special precautions to be taken in each case.

Answer.—The cost is always subject to railway charges. Prices given apply to London.

(a) **Tiles.**—(Plain tiles 50/6 per square. Pantiles, 24/6 per square.) Tiles should be well burnt—almost to vitrification. When broken should show a fine grain and freedom from stones, etc. Sand-faced tiles are the best. Plain tiles should

have a slight curve in their length, so as to lie closely upon the one below when fixed.

(b) **Slates.**—(Common Welsh Countesses, 43/9 per square. Best green Westmorland slates in diminishing courses, 65/- per square.) Westmorland (green) slates are thick and coarse but durable. Generally used in best work. Welsh slates in most common use. Thin and straight, blue or purple in colour. Norway supplies both purple and green slates, which are durable, but irregular in cleaving and cutting. Slates should be selected which are hard to break, give metallic ring when struck, are free from veins and patches, or lumps of pyrites, and which do not absorb more than 1 per cent. of their weight of water.

(c) **Mineral Asphalte.**—($\frac{3}{4}$ in. thick in two equal layers. 48/- per square.) This should be obtained from a reputable firm and laid by their own workmen under guarantee.

(d) **Copper.**—(18 oz. 200/- per square—exorbitant price due to the great demand for the metal for electrical transmission.) This should be soldered but laid with rolls about 2 ft. 6 in. apart, and with double-welting joints across the fall.

(e) **Lead.**—(7 lbs. 150/- per square.) Lead may be obtained in sheets cast or milled. The cast are more durable, but the milled easier to work and generally used. 7 lbs. lead is used for flats and gutters, and fixed with rolls 2 ft. 6 in. apart and drips not more than 10 ft. apart, to allow for expansion and contraction.

(f) **Zinc.**—(No. 14 gauge. 75/- per square.) Laid generally on same principle as lead and copper. It should be done by a good company and guaranteed.

(g) **Corrugated Iron.**—The cheapest roof

covering. Used for temporary and portable buildings. If well galvanised lasts almost as well as zinc.

There are now on the market many mechanically made roofing materials which cost on an average about 27/- per square. Some of these are doubtless very durable, but they have not yet been tested by long enough use to be incorporated in the foregoing list in order of durability.

7. Give a list of the aggregates used for reinforced concrete arranged in order of their strength, and indicate which have the best fire-resisting properties.

Answer.—(a) Granite chips. (b) Crushed gravel. (c) Clinker. (d) Crushed bricks. (e) Broken trap rock. (f) Coke breeze.

Fire-resisting qualities.—Coke breeze burns very slowly, but does not crack when wetted. Clinker and crushed bricks are incombustible, and when heated bear water fairly well. Granite and gravel fly under heat, and trap rock cannot be relied upon, as some kinds disintegrate.

EFFECTS OF A FACTORY FIRE.

A good deal of wood, seasoned for use, we believe, in the manufacture of baby carriages, and no doubt highly combustible, was stacked in the building of which the ruins are illustrated below. It may be inferred that this burnt with great heat, and the effect upon the iron girder is pretty much what might have been expected in the circumstances, except that the girder, although it has buckled rather badly, has suffered less severely than is usual where ironwork is unencased. It is seen that the brickwork has stood the ordeal remarkably well.



THE EFFECT OF FIRE ON UNPROTECTED STEELWORK: VIEW AT STAR MANUFACTURING CO.'S WORKS, LONDON, E.

SO-CALLED FIREPROOF CONSTRUCTION: AN OBJECT LESSON.

The report of the New York Board of Fire Underwriters on the destruction of the Equitable building on January 9 of this year is a document of considerable permanent interest as an object lesson in the behaviour of buildings involved in a destructive fire. It gives the results of a careful examination of the ruins and a summary of the conclusions regarding building construction which are drawn from the effects of the conflagration on the various materials in the building. The case is a particularly interesting one, because the structure was built in stages. The original building was five storeys high and about 87 ft. by 135 ft. This was erected in 1869. Later the 135-ft. front was increased to 234 ft., and in 1886 the 87-ft. front, which is the one in Broadway, was extended to 195 ft. The original portion of the building was then increased in height to eight storeys, and about the same time the building was extended back to a rear street, so that it finally occupied the entire block, with an area of about 48,000 sq. ft. Collectively, therefore, the Equitable building consisted of five buildings erected at different times. It was of so-called fireproof construction, most of the floors being of wood on brick or hollow tile arches between wrought-iron or steel I-beams. The beams rested on walls and on columns, usually of cast-iron, but occasionally of small wrought iron sections.

The temperatures developed in the fire are estimated to be slightly lower than those observed in fires in other so-called fireproof buildings. Glass and brass fixtures in the upper part of some rooms were fused, indicating a temperature of about 1,600 deg. F. at least. In the dining-rooms and kitchens silver ware was fused. On the other hand, no cast-iron or steel parts were found to have been melted, indicating that the temperature did not reach 2,200 deg. F. The hottest fire was apparently around certain light shafts and at places in the basement where the insulation on electric wires burned.

Behaviour of Wrought-iron Columns.

As before stated, most of the columns were of cast-iron, ranging from 6 in. in diameter and $\frac{3}{4}$ in. in nominal thickness of metal in the top storey to $14\frac{3}{8}$ in. in diameter and $1\frac{3}{8}$ in. in thickness of metal in the basement. There were some wrought-iron Phoenix segmental columns and a few box columns of two 6-in. wrought-iron channels with two or four plates. In the oldest part of the building the destruction was the greatest, and here the collapse of the structure was apparently due to failure of one or more of the cast-iron columns. Some of them were fractured entirely across and the brackets of others were cracked or partly broken off. In a number of cases the column was cracked above the bracket, but the latter was intact. Occasionally the brackets deflected without any fracture, indicating a softening and bending of the column. Many very defective columns were found, due to the shifting of the cores, so that in places the metal was little more than $\frac{1}{2}$ in. thick. Speaking generally, the wreckage indicates that the wrought-iron columns behaved much better than those of cast-iron. There seems to be some question, however, whether the cast-iron columns were so well protected as those of wrought-iron.

Wood Floors.

The majority of the floors in the building were of wood. In the upper storeys the sleepers were protected on each side by hollow tile laid loosely on a cinder concrete fill. In the lower floors cinder concrete was used as a filling between the sleepers. In some places in the old part of the building 4-in. segmental brick arches of 5-ft. span were used between the floor beams, but as a rule hard burned terra-cotta was employed. On most of the floors the wood was entirely consumed, even the sleepers between the terra-cotta tile filing being burned. The terra-cotta and brick arches withstood the fire well, and little falling of the lower webs of these arches was found except in the basement in the neighbourhood of the electric wires, where the heat from the burning insulation was very intense.

Partitions as Fire Stops.

Various forms of partitions were used in the building. Some were 4-in. terra-cotta extending from the floor to the ceiling, others had a tile base with wood and glass above, some were entirely of wood, some were of 4-in. hollow plaster blocks, and some were of metal lath and plaster. All doors and trim were of wood. The tile partitions from the floor to the ceiling were mostly in position after the door frames burned away. All others were more or less damaged. The condition of the partitions leads to the conclusion that it is unsafe to assume that a fire cannot spread quickly in office buildings. Such structures contain a large amount of highly combustible material in the form of furniture, books, and papers. Under such conditions fireproofing is of the highest importance, and it is manifestly desirable to construct partitions which will act as fire stops as well as mere sub-divisions of office space. The tenants of the Equitable building whose business was interrupted seriously by this fire will probably agree that they will willingly spend a considerable sum to be insured against any repetition of it. This is really one of the most important lessons to be drawn from the Equitable fire. It taught very little that was new, but it emphasised strongly many things which are likely to be forgotten or underestimated. Architectural engineering is able to produce practically fireproof structures, considered merely as structures, but the contents of buildings used for office purposes are so inflammable that serious fires are sure to occur from time to time unless adequate fire stops are provided on the different floors, and the only way in which these can be provided is by adequate partitions. The Equitable fire clearly demonstrates that it is just as dangerous to have large unbroken floor areas in an office building as in structures devoted to mercantile and manufacturing purposes, and it points to the desirability of installing automatic sprinkler systems in them to check any fire before it attains serious proportions.

New Kursaal, Douglas.

At Douglas, Isle of Man, Lord Raglan, Lieutenant-Governor, and Lady Raglan, formally opened the Villa Marina Kursaal, which has been built by the Corporation. A large hall is surrounded by a raised promenade corridor, giving access to a series of roof gardens. Messrs. P. Robinson and W. Alban Jones, the architects, have designed the building in Classical style. Building and equipment have cost about £32,000.

BOOK NOTICES.

A Manual for Clerks of Works.

Although we have long supposed that the clerk of works is of the order of those who are born, not made, this view by no means excludes the devising of means for the development and fruition of his peculiar genius. That he is, after all, merely human and subject to improvement as well as to deterioration, seems, however, to have been pretty generally overlooked, and with regard to his education he seems to have been left entirely to his own resources. In this respect his anomalous position as at once the servant of the architect and the building owner, and as the bugbear of the builder, has rather tended to put him beyond the pale of sympathy within which the ordinary craftsman is pampered and cosseted—that is to say, there is no special school for him. He joins craftsmen's classes, it is true, but from these he emerges as a clerk of works by his own natural aptitude rather than as the result of specific training. Moreover, it is an exceptionally bold man who tries to teach him anything by means of books, the C.W. being apparently assumed to be himself the fount and well-spring of all such knowledge as his avocation demands. Even architects have been known to consult him with humility and builders' foremen to accept his decisions with overt awe tempered by covert blasphemy. Mr. Metson, greatly daring, offers the C.W. an excellent little book in which his duties are comprehensively and clearly summarised. He is careful to say, however, that "it is primarily written to be of use to those successful applicants for the position of clerk of works on first appointment"; and, he adds, with becoming modesty, "but it is possible that those who have held the appointment for some years may gain some assistance from a perusal of its pages." We are convinced, from a perusal of the book, that neither claim is too large. Mr. Metson is thoroughly master of his subject, and no clerk of works, however accomplished or self-conceited, will be wise in ignoring so excellent a manual, which is all compact of most useful practical information. Architects and builders may also derive many valuable hints from it as to the supervision of work and the selection and rejection of materials—especially the rejection.

"The Clerk of Works: A Handbook on the Supervision of Building Operations." By George Metson, Licentiate R.I.B.A., M.R.San.I., etc. Pages vi. + 182, 4½ ins. by 7 ins., price 2s. 6d. net. London: Crosby Lockwood & Son, 7, Stationers' Hall Court, E.C., and 5, Broadway, Westminster.

Measuring and Valuation of Repairs.

On the whole there is probably much more estimating for repairs than for original construction; and yet the subject of repairs has received comparatively little attention at the hands of the writers of text-books on estimating. Mr. George Stephenson has devoted a manual to it, and this has found so much favour that it is now issued in a fifth edition. It shows a clear and simple system of measuring repairs and of valuing them at low competitive profits—an expression that must by no means be taken to imply base materials and scamped workmanship, but a sound method that tends to their avoidance.

"Repairs: How to Measure and Value them in Competition." A Handbook for the use of Builders, Decorators, etc. By George Stephenson. Fifth edition, revised and corrected, with a Supplementary Chapter. Pages iv. + 102, 5 ins. by 7½ ins., price 7s. net. London: B. T. Batsford, 94, High Holborn.

COMPETITIONS.

Savings Bank, Verona.

The Savings Bank of the City of Verona have instituted a competition, open to architects of all nationalities, for the design of a new building to be erected on the area bounded by the Piazza delle Erbe, Via Camera di Commercio, Via Portici and Via Mazzini. The premiums offered are Lire 30,000 (about £1,200) and Lire 15,000 (about £600), for the designs placed first and second respectively. The following particulars are taken from a pamphlet issued by the bank authorities:

The number of the floors indicated in the following notes serves only to determine the minimum necessary for the distribution of the various rooms and apartments, but full liberty is allowed to the designer to raise other floors in some parts of the building. It is required that the building shall completely harmonise with, and be founded on, the general character of the Piazza delle Erbe.

That part of the new building which fronts towards the Piazza delle Erbe must follow the existing perimetral line up to the meeting with the dotted line of the plan of the city, which fronts on Via Mazzini; some slight modification may be permitted in the breadth of the two projecting bodies at present existing; that on the three other sides must coincide with the dotted perimetral line of the plan. The building must have the main entrance for the savings bank either towards the Piazza delle Erbe, or towards Via Mazzini; it must have besides two secondary entrances, one for the dwelling apartments, a carriage way if possible, the other for the savings bank, and this must, of necessity, be carriageable, both with access from the secondary streets, Via Portici or Via Camera di Commercio. For the decorative parts, the use of the hard calcareous stone of the Veronese Province is directed—and the use of local materials for all the parts of the building facing the outside.

The building must comprise the following accommodation: In the basement—(a) Places for the service of the small cash-boxes in custody, and for the treasure; (b) places for the electric light machines; (c) ample storage for coal, etc., old furniture, old neglected archives, prints, etc., etc.; (d) places for the boilers of the termosifone; (e) cellars for each of the apartments; (f) separate stairs for the places mentioned in letter *a* (one for the public for the use of the small cash-boxes in custody, one for the employees for access to the treasure), for the places at the letters *b*, *c*, *d*, and for the cellars mentioned in letter *e*; (g) cellars underneath shops and all other rooms which might eventually be used for shops.

On the ground floor—(a) 400 sq. metres of area to be used for shops on the fronts towards the Piazza delle Erbe and towards the Via Mazzini with cellars and entresols; (b) vestibule of the bank; (c) public hall; (d) janitor's room with dormitory for guards adjoining; (e) main staircase and lift; (f) two staircases for offices; (g) a secondary court for use of savings bank, and if possible a separate one for use of the apartments; (h) cash office with six wickets; (i) cash-book office with eight wickets and office for checking the books adjoining; (l) cheque office with three wickets and adjoining control office. Ante-room to said office with private entrance; (m) counting office with six wickets and adjoining office of control; (n) mortgage office with two wickets and adjoining office of control; (o) meeting hall; (p) secondary entrance;

(q) places for service and corridors; (r) coach-house for motor cars; (s) small workshop for repairs.

Entresols—There are no special directions for the entresols; they are intended for the part over the shops and for the use of the same, and where the designer thinks it convenient to place others, they can be used by offices on the first floor.

On the first floor—(a) Entrance hall; (b) council hall for the administration; (c) hall for contracts; (d) Syndic's committee hall; (e) president's cabinet; (f) two cabinets for the managers; (g) cabinet for the vice-manager; (h) three small cabinets reserved for conversation; (i) ante-room, to be used also in common; (l) secretary's office; (m) general counting office; (n) general controllers' office and control of branch offices; (o) legal office; (p) commission offices, protocol, correspondence, dispatch and copying (this office must be connected by a lift with the archives and the remaining commission offices on the second floor).

On the second floor—(a) Technical office; (b) commission office and place for the service thereof; (c) archives; (d) dwelling for the manager; (e) dwelling for the head porter.

For any upper floors that the designer may get out, no directions are given. The cost of the building must not exceed the sum of Lire 1,500,000 (about £60,000).

Each design must be furnished with the following indispensable documents: (a) the designs, to scale of 1 to 100, of the various floors; (b) the fronts towards Via Portici and Via Camera di Commercio, also to scale of 1 to 100; (c) the fronts, to scale of 1 to 100, of the building towards Piazza delle Erbe and towards Via Mazzini, in watercolour; (d) two perspective front views in watercolour, one from Via Cappello looking towards the corner of the Piazza delle Erbe with Via Mazzini, the other from Palazzo dei Mazzanti, looking towards Via Cappello and Via Pellicciai; (e) two main sections, to scale of 1 to 50, with the architectural decorations indicated; (f) architectural details of the most important parts of the building to scale of 1 to 20; (g) particulars of the architectural decorations, designed for the public hall, for the main staircase, for the meeting hall, and for all the other places, as in the preceding letter *f*; (h) detailed metrical computation for all work to

be executed, except for decoration by painting, for which the designer will include the total expense in the account; (i) account of expense.

The documents, closed in suitable cases or in sealed covers, must be sent to the President of the Savings Bank, at the seat of the Institution, Via Garibaldi No. 1, accompanied by a sealed letter, in which, in a closed envelope, must be put the signature corresponding to the motto selected by the competitor, and his address. The judicial commission will be composed of four members, named by the Council of Administration of the Savings Bank of Verona, and of the President of the same. Designs are to be sent in by February 15th, 1914.

Tendring Cottage Homes.

The Competitions Committee of the R.I.B.A. desire it to be known that the conditions of this competition are not satisfactory, and are the subject of correspondence between the Committee and the promoters.

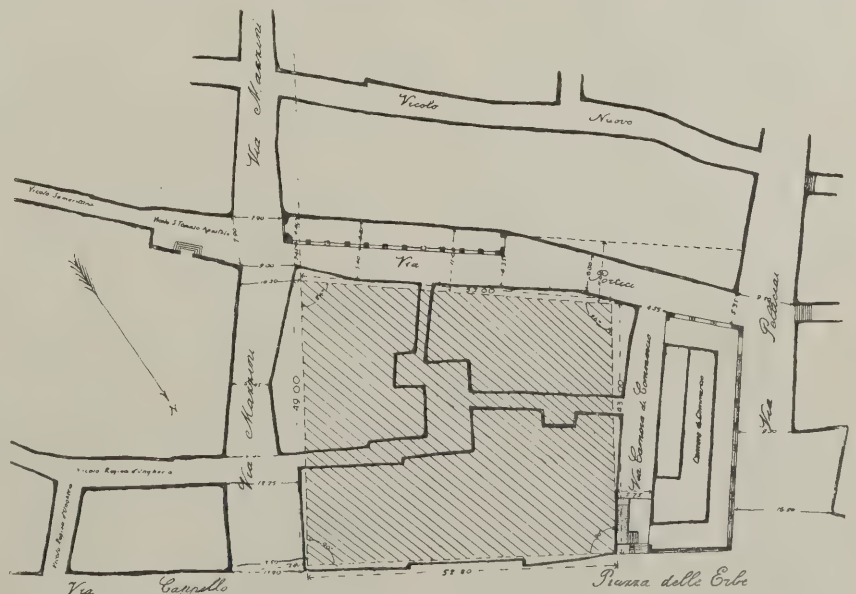
COMPETITIONS OPEN.

SEPTEMBER 1.—TOWN PLANNING, HIGH WYCOMBE.—Schemes for the town planning of the borough are invited by the Borough Council. Premiums £25, £10, and £5. Particulars, T. J. Rushbrooke, Borough Surveyor, High Wycombe.

SEPTEMBER 3.—BRANCH STORES, WHEATLEY HILL.—The Board of Management of the Haswell Co-operative Provision Society, Ltd., invite competitive plans and estimates for new branch premises at High Wheatley Hill. Premiums £25, £15, and £10. Particulars and copies of sketch plan can be obtained at the office of the General Manager, Haswell Co-operative Society, Ltd., Haswell.

SEPTEMBER 30.—FIRE STATION, BLACKBURN.—Blackburn Corporation invite designs for a new fire station and firemen's dwellings from architects practising within the borough. Premiums £100, £50, and £25. Assessor, Mr. F. G. Briggs, F.R.I.B.A. Apply, Town Clerk, Town Hall, Blackburn.

SEPTEMBER 30.—SANATORIUM, NORTH WALES.—The King Edward VII. Welsh National Memorial Committee invite designs for sanatorium to cost £20,000.



COMPETITION FOR NEW SAVINGS BANK, VERONA: SITE PLAN.

Premiums £100, £50, and £30. Particulars from Secretary, Municipal Offices, Westgate Street, Cardiff.

OCTOBER 4.—WORKING CLASS DWELLINGS, BRADFORD.—The City of Bradford Council invite architects to submit designs for laying out an estate of 50 acres and for erecting small houses thereon for the working classes. Mr. Henry T. Hare, F.R.I.B.A., will act as assessor. Particulars may be obtained on application to Frederick Stevens, Town Clerk, Town Hall, Bradford. (Deposit, one guinea.)

OCTOBER 31.—TOWN PLANNING SCHEME, YORK.—Premiums of £100, £50, and £25 are offered for a town-planning scheme for certain areas in and near York. Particulars, F. W. Spurr, City Engineer, Guildhall, York.

NOVEMBER 1.—ROYAL PALACE AND LAW COURTS, SOFIA.—Particulars, Commercial Intelligence Branch, Board of Trade, Basinghall Street, E.C.

NOVEMBER 29.—BAND PAVILION, FOLKESTONE.—Folkestone Corporation invite designs for a band pavilion to be erected on the face of the West Cliff, at a cost, including approaches, not exceeding £20,000. Mr. Edwin T. Hall, F.R.I.B.A., will act as assessor. Intending competitors should forward deposit of £1 is. to A. F. Kidson, Town Clerk, Town Clerk's Office, Folkestone, when conditions will be sent.

JANUARY 2.—ROYAL EXCHANGE, MANCHESTER.—The Board of Directors of the Manchester Royal Exchange, Ltd., invite designs for additional new buildings and alterations on the existing Exchange buildings. Mr. James S. Gibson, F.R.I.B.A., will act as assessor. Particulars, instructions, and plans will be forwarded on application to Richd. J. Allen, Master, the Manchester Royal Exchange, Ltd., Manchester, accompanied by a cheque for £2 2s.

FEBRUARY 15.—SAVINGS BANK, VERONA.—The Savings Bank of the City of Verona invite designs for a new building to be erected on an area bounded by the Piazza delle Erbe, Via Camera di Commercio, Via Portici, and Via Mazzini. Premiums: (1st) Lire 30,000 (about £1,200) and (2nd) Lire 15,000 (about £600). The President of the Savings Bank and four others, to be appointed by the Council of Administration, will act as assessors. Applications to be addressed to the seat of the Institution, Via Garibaldi No. 1. (Site plan and summary in this issue.)

NO DATE.—NEW OFFICES FOR THE BOARD OF TRADE, ETC., LONDON.—The Commissioners of H.M. Works and Public Buildings invite preliminary sketch designs in competition for new offices for the Board of Trade, etc., to be erected on a site in Whitehall Gardens, London, S.W. From sketch designs submitted the authors of not more than ten designs will be selected to submit designs in a final competition at an honorarium of £300 each. The assessors are Mr. Reginald Blomfield, M.A. (Oxon.), A.R.A., P.R.I.B.A., Mr. John Belcher, R.A., and Sir Aston Webb, C.V.O., C.B., R.A. Conditions of the competition, which is open to all British subjects, with full particulars of the accommodation required and plan of site, can be obtained on application to the Secretary, H.M. Office of Works, etc., Storey's Gate, London, S.W., and deposit of £1 is.

NO DATE.—WORKMEN'S COTTAGES, SKELMANTHORPE.—Skelmanthorpe Urban District Council invite competitive designs for twelve workmen's cottages, to be built by the Council. Particulars, Clerk, Wilson Fisher, Skelmanthorpe, near Huddersfield.

NEWS ITEMS.

Johnson's House in Gough Square.

Renovation work has begun on the Johnson House in Gough Square. The front of the old building is being pointed, and workmen are busy in the interior, with the view, probably, of having some of the rooms ready for September 18, the anniversary of the dictionary-maker's birth.

Roman Pavement at Kenchester.

A large mosaic pavement of a rich geometrical design, but not intact, has been discovered at Kenchester, Hereford, where excavations are unearthing many evidences of the Roman occupation. This is the second mosaic pavement to be found. The large Roman altar which was discovered has been placed on view at the Hereford Free Library.

Town Planning at Liverpool.

It is understood that the Local Government Board have given authority to the Corporation of Liverpool to prepare a further town-planning scheme under the Housing, Town Planning, etc., Act, 1909, the scheme now authorised to be prepared relating to an area of about 1,177 acres situate partly within the city and partly within the urban district of Allerton.

Cloister at Golder's Green Crematorium.

The cloister, 250 ft. in length, connecting the east and west columbaria with the chapel entrance overlooking the garden, is now in course of construction at Golder's Green Crematorium and will be finished before the end of the year. This will complete the architectural scheme of the buildings designed by Sir Ernest George, A.R.A., and Mr. A. B. Yeates, F.R.I.B.A., and will afford a permanent and covered place where works of art may set up as memorials without fear of damage from the weather; similar in idea to the Campo Santo at Pisa.

Hospital for Epilepsy and Paralysis.

New buildings for the Hospital for Epilepsy and Paralysis in Maida Vale, London, have been erected from designs by Mr. Keith D. Young, F.R.I.B.A., at a cost of about £35,000. Messrs. J. W. Falkner and Son were the builders. Accommodation is provided for seventy patients and a staff of twenty-six on five floors. Special features are the accommodation for rest cure patients, there being fourteen single-bed wards for such patients and a school for massage and electrical treatment.

The New Delhi.

Mr. F. O. Oertel, F.R.I.B.A., in the course of a paper on "Indian Architecture and its Suitability for Modern Requirements," read at a meeting of the East India Association at the Caxton Hall, contended that it is a mistake to regard the Public Works Department as the great opponent of indigenous art and architecture. There was no feeling whatsoever against indigenous architecture in the service to which he belonged (he is superintending engineer at Allahabad), but in the selection of styles they were not always free agents, as many considerations came in. After thirty years' experience he strongly held that architectural salvation for India lay in the adoption of some form of Oriental architecture which had grown up in the country and was most suited to its climatic and other conditions.

THE MODERN FLAT ROOF.

With reference to the article in our issue of August 13th, page 171, on "Modern Flat Roofs," Messrs. Thornely, Mott, and Vines, 1, Victoria Street, Westminster, write as follows: "We find no mention of the Ironite process, of which we venture to append a very brief description. In constructing an ordinary concrete roof, all that it is necessary to do is to apply three coats of Ironite, which is a metallic powder that, when simply mixed with water and applied with an ordinary distemping brush, enters the pores of the concrete, oxidises and expands, and thus renders the whole of the concrete perfectly watertight. Amongst typical instances of its use are: Lambourn Buildings, Birmingham, schools for Kent Education Committee; Students' Union, Liverpool; cold storage roof at Cardiff; Victoria Palace, S.W.; large flat roof at Gibraltar, etc., etc. For cracks in concrete Ironite is most useful in effecting a good and permanent bond."

LONDON BUILDING TRADE STRIKES.

A strike of builders' labourers engaged in the construction of the new hotel which is being erected for the Strand Hotel Co., Ltd., near Piccadilly Circus, has been settled. The hotel, which when completed will be a very large building with over 1,000 rooms, is being erected by Messrs. J. Mowlem and Co., the contractors, and is expected to be finished by the end of next year. Among the 350 men who are employed on the work were about a score of non-unionists, and it was owing to the refusal of these men to join the trade unions that the dispute had arisen. The unionists among the builders' labourers are trying to strengthen their position and there have been one or two small strikes lately in consequence. Fully 50 per cent. of the men, however, still stand outside the unions. In the present case the men's leaders approached the contractors with a view to the exclusion of the small number of non-unionists employed, but the reply was that the firm never inquired whether their men were unionists or not, and they refused to discriminate. The builders' labourers accordingly ceased work.

The London painters have struck for an increase of three-halfpence an hour, for the recognition of their union, and for a code of working rules. The employers have offered them a penny an hour increase. These disputes are noticed editorially on page 104.

OBITUARY.

Mr. Charles Jones, M.I.C.E., F.S.I.

Mr. Charles Jones, M.I.C.E., F.S.I., the Ealing borough engineer, died on Sunday last at the Lodge, Culmington Road, Ealing. Mr. Jones, who was eighty-three years of age, was a native of Beccles, Suffolk. He went to live at Ealing about sixty years ago, and after practising as an architect in the district was appointed the first surveyor under the Ealing Local Board. He had dealt with the municipal development of Ealing in a book he wrote bearing the title, "From Village to Corporate Town." Mr. Jones was about to resign his office in order to discharge, during the ensuing year, the duties of Mayor. He had undertaken a good deal of architectural work in the Ealing district, including the design of several churches and the Ealing public offices, but his chief work was that of a sanitary engineer.

TRADE AND CRAFT.

A New Patent Wall Tiling.

We have received for examination and comment about a score of specimens of the Stocal and Griff-Stocal patent wall tiling. As various in size, design, and colouring as they are numerous, these specimens at once impress one with the conviction that this new system of manufacture provides a notable and valuable addition to the resources of the architect and builder.

Stocal tiles, instead of being made of earthenware, are formed of stout steel plates with the edges turned backwards in such a manner that when bedded in cement or concrete or plaster the tiles become an integral part of the wall and cannot fall off. The whole surface of the tiles, back and front, is enamelled with Stocal vitreous enamel, which is quite impervious to rust, acid, salts, frost, and atmospheric influences. The exposed surfaces are beyond question beautiful, and are produced in the brilliant colouring and surface effects, either glazed to any degree or matt, of the various makes of earthenware goods, such as white and coloured engineering, salt glazed, faience ware, majolica, terracotta, Dutch ware, etc., in addition to several hundred shades and tints, including the brilliant iridescent lustre effects which are peculiar to the Stocal tiles, which can be manufactured in all commercial sizes from 1 in. by 1 in. upwards, and also in any relief or ornamental shape or mouldings. Architects will appreciate the advantage of being able to obtain the whole of their flat and relief exterior or interior glazed wall surfaces in one uniform material.

Stocal tiling is guaranteed by the manufacturers not to crack or craze under any variation of temperature, and is therefore particularly suitable for outside work. It is stated to be practically one-third the weight of earthenware tiling, and, being substantially of steel, possesses an inherent strength of its own, and is, of course, unbreakable. In the event of a wall settling or bulging, the tiles themselves do not crack; the gaps follow the joints of the tiles, necessitating re-pointing only. The shape and construction of Stocal steel tiles permit of their being set upon the surface and forming an integral part of a concrete or cement brick or block of almost any size, the finished article being a brick or block with a high quality glazed or matt face in any shade or color, produced, it is stated, at a relatively very low cost.

These patent steel tiles are also manufactured for attaching to partitions, walls, and ceilings of wood and other materials, that take screws. These particular tiles are named the Griff-Stocal, and differ from the Stocal tiles only in so far that the turned-back edges are shaped and holed to take concealed screws, the tiles at the same time being flanged to interlock with each other. The surface appearance, when they are fixed, is precisely that of Stocal tiles. Thus, roughly finished wooden or similar partitions, when covered with Griff-Stocal tiling, look exactly like solid glazed brick or tiled walls, and possess great fire-resisting and weather-resisting qualities, and are, at the same time, practically non-conductive. Griff-Stocal tiles will doubtless prove invaluable to shipbuilders, for wooden buildings in the Colonies and abroad, and also at home for wood and other light buildings, such as isolation hospitals, pavilions, homes for open air treatment, etc., etc.

In addition to tiling work for the British

Admiralty, Camberwell and other borough councils, the Calico Printers' Association, etc., the Underground Electric Railway Co., which have had replacements, alterations, and additions executed in Stocal tiling at many of their railway stations during the last two years, have now specified these tiles throughout the extension of the Bakerloo Railway now in course of construction from Edgware Road to Queen's Park.

From the specimens submitted it is evident that the tiles have a wide range of adaptability. They are by no means limited to plane surfaces in single colours, the specimens including some beautiful and chastely decorative examples of raised ornament for bordering, etc., in which the cameo pattern is thrown into relief by a darker or lighter ground tint. Upon the same principle, some of the tiles take the form of advertisement labels, on which the raised lettering is similarly thrown into relief; while the flat surface is turned to account by printing upon it an excellent *genre* picture in colours, as well as a figure subject in black and white, advertising a brand of cigarettes. These, however, are only interesting by-products. The staple article—the real objective of the invention—is a most serviceable tile for use in building construction.

Industrial Lighting.

Under this title the British Thomson-Houston Co., Ltd., have just issued an interesting pamphlet on up-to-date methods of lighting mills and factories. Light, we are reminded, is a condition of efficiency and safety in every department and phase of factory operation. Good lighting not only conduces to economical factory operation, but also minimises the risk of accidents and breakdowns, and in this and in other ways reacts on the health and thus increases the efficiency of the workers. An extraordinarily cogent argument in favour of improved lighting is deduced from the statement that experts give 1 per cent. as the average gross spoilage in our total manufacture—an item that in the year 1907 reached the formidable total of £12,560,000. Of this vast cost of spoilage it is estimated that 75 per cent. occurred under artificial light, and 25 per cent., or £2,355,000, would have been saved if the illumination had been better. This point is very strikingly amplified in the following passage: "A busy mill operates by artificial light, on an average, about 500 hours each year. Under ordinary conditions the amount of work actually produced under artificial light is between 12 and 20 per cent. less than is produced under daylight. These facts mean that 2 per cent. of the output is cut off by after-dark work; in other words, the plant, in effect, runs from six to ten whole days every year with absolutely no output. With this fault corrected, a textile mill could get 102½ yards of cloth for every 100 yards produced now, and that with no added cost for investment, overhead expenses, or depreciation." Translated to terms of hours, these figures show that the lost time amounts to between 60 and 100 hours per year per operative, and the manager of a large silk mill has calculated that with 100 looms this means from 6,000 to 10,000 loom-hours wasted entirely, so that, in effect, two or three looms are worn out each year without the production of a single yard of cloth. Besides this, the power to run these looms is wasted."

Beyond the monetary loss that is attributed to ineffective lighting there is the

terrible amount of mortality and suffering that can be as reasonably attributed to the same conditions. Two charts published in the booklet show the certainty with which fatal accidents increase during the dark periods of the year and decrease as the days get longer. The publication of the booklet is peculiarly opportune in view of the recent appointment by the Government of a Special Committee to investigate and report upon the question of factory lighting, and we understand that the British Thomson-Houston Co. have submitted to this Committee, on request, valuable data derived from their large experience of industrial lighting.

The object of the booklet, of course, is not merely to state the case, but to provide the remedy, the British Thomson-Houston Co. being experts in industrial lighting. It is shown, in an interesting series of photographic illustrations, that Mazda drawn wire electric lamps, equipped with scientifically designed metal reflectors, known as Mazdalux, correctly arranged so that adequate illumination is given over the desired areas, provide a convenient lighting unit of high efficiency. The company have organised an illuminating engineering department, equipped with every facility and appliance for the design and testing of lighting apparatus and the preparation of installation schemes, and this department has carried out scientific lighting installations in a number of large textile mills and other factories. Several of these installations are illustrated in the booklet on "Industrial Lighting," which may be had from the company's London office, 77, Upper Thames Street, E.C.

Carron Gas Appliances.

A copiously illustrated booklet showing the Carron gas appliances affords a complete survey of the applications of gas to all the processes of cooking—roasting, baking, grilling, frying, boiling, and stewing being all included. Various patterns of cookers, large and small, are shown, as well as a series of grillers, which also are graded in size as well as varied in pattern to meet the requirements of, say, a small cottage or a large restaurant, or demands of intermediate extent, and there are many very useful accessory appliances, such as hot-plates, boiling burners, baking plates, carving tables, and so forth. Gas cooking offers many most estimable advantages, and is of special convenience in the summer time, and the many admirable appliances shown in the Carron booklet are a strong persuasive to the adoption of a system that is so cleanly, economical, and efficient. The booklet may be obtained from the Carron Company, Carron, Stirlingshire, and the appliances themselves may be inspected at the firm's London show-rooms at 15, Upper Thames Street, E.C., or 23, Princes Street, Cavendish Square, and 3, Berners Street, W., and at Manchester, Liverpool, Glasgow, Edinburgh, Bristol, Newcastle, Birmingham, and Dublin.

Ventilation and Warming of Hospitals and Schools.

Messrs. E. H. Shorland and Brother, of Failsworth, Manchester, report that the extensions to St. Swithin's Sunday-school, Belper, are being supplied with their patent exhaust roof ventilators, and that the Borough Fever Hospital extensions, Stafford, are being supplied with their warm-air ventilating patent Manchester grates.

MOTOR NOTES FOR BUILDERS AND CONTRACTORS.

[Specially Contributed.]

Small Expenses on Commercial Cars.

IN attempting to supersede horse equipment by motor trucks the vital question is whether the conditions of operation can be so modified as to permit of applying the machine to such an amount of its capacity as will reduce the present cost with horses. In other words, it is unquestionable that, if conditions are arranged so that the machine can be permitted to operate for a sufficient period of the working day, it will readily effect a saving.

There are at present many impediments to such machine employment, due largely to delays incident to making the delivery as well as the delays quite frequently experienced in, for instance, loading at a coal-yard. Unloading conditions present the greatest difficulties because they are usually beyond the control of the operators; but, the yard conditions being absolutely in the hands of the coal operators, there should be no reason why the loading of coal cannot be accomplished with very short delay of the machine.

Coal Transport a Seasonal Operation.

Another impediment is the fact that the transportation of coal is a seasonal performance, and the long months of inactivity, as well as the difference in volume of business between the mid-winter conditions and the seasons of lesser activity at the beginning and end of this season, make it somewhat difficult to decide upon an equipment which will be large enough to take care of the maximum conditions and yet will not involve too much investment for the average or normal conditions, and, further, the possibility of selecting an equipment of such character as to permit of its use in other lines of service when not required for coal transportation.

That the difficulties referred to with regard to loading operations can be changed to provide for quick loading by mechanical means is quite apparent from the number of coal-yards which are equipped with hoppers and other mechanical devices which provide for quick loading of the coal; but where such equipments are not in existence, the coal dealer has not only the consideration of purchasing an expensive equipment of motor vehicles, but frequently in addition an expensive modification of his yard facilities.

Hopper Equipment.

It goes without saying that the ideal way to load motor trucks would be automatically by the hopper system, the machine passing under the hopper and taking its load in a very few minutes and immediately starting upon the delivery. If this hopper equipment is not in existence, the most inexpensive solution of the matter of lessening the delay in loading would be to employ extra bodies, which might be loaded in the absence of the machine, and which could be quickly mounted or demounted by the power equipment of the machine itself. This plan might avoid the necessity of any serious change in yard equipment, and the cost of loading by hand would not be a serious consideration when contrasted with the investment necessary for mechanical loading. Several plans have been already employed by which separate or spare bodies are utilised in this manner, the body in some cases being hoisted vertically off the truck and held in a sus-

pended position while being loaded until replaced on the machine again for delivery.

Equipment for Delivery.

In making deliveries such various conditions are encountered as to make it often difficult to determine whether the automobile body should be stationary with end or side inclined chutes, whether it should be tilted at one end, or possibly tilted and the body dumped to the ground as is occasionally necessary in handling soft coals.

All these types of body equipments on machines are in use, as well as the scheme of handling a large quantity of coal on the semi-trailer equipment, which has the advantage of transporting the greatest portion of the weight over ordinary large-diameter wheels with steel tyres; but the final determination as to what class of body will be selected must be determined by the particular operating conditions for which the machine is intended.

Larger Loads.

It is certain that larger loads can be transported by machines than by horses, and in very much less time; but sometimes the delivery conditions of the operator prevent him from utilising the large sizes of machines, in view of the fact that his deliveries are to be made in smaller quantities. Such a case as this is coped with by the employment of a large machine with several compartments in the body, so that any one of two or three portions of the load may be discharged without interfering with the balance.

The problem, therefore, is not whether materials can be transported more cheaply by machines than by horses, but whether the existing conditions in any particular case will permit of the employment of the machine to anything like its economic capacity. Sometimes these conditions are unchangeable, and again slight modifications or changes only are necessary in bringing about new conditions which permit the machine's utility to be taken advantage of.

Some Difficulties of Delivery.

In many cities coal has to be delivered in the most inaccessible places, sometimes to very small manholes at the edge of the footway, sometimes through openings which are located at the building rather than at the edge of the footway, and in other instances into openings which are in the walls of the building above the footway. It seldom happens, except in industrial institutions, that the coal can be directly unloaded below the place on which the machine stands. Wherever these conditions can be changed so that an inclined inlet or chute can be provided from the machine to the coal pile, the quick discharge of the coal from the machine can be accomplished, but this is frequently impossible, and in some cases a form of chain bucket conveyor has been fitted to the machine so that the load may be transferred in this manner to points which are otherwise inaccessible.

The Question of Cost.

In the matter of securing from coal operators reliable information on the cost of transportation with horse equipment there appears to be considerable difficulty, due principally to the variety of bookkeeping methods, wherever they exist, and the lack of any uniformity in cost per ton or

other unit delivered is due to consideration which must be given to the complete inactivity of the equipment during a portion of the year, and variance of activity from one end of the busy season to the other.

The whole problem requires segregation of those charges which are constant whether the vehicle is employed or not, and an additional charge for those items affected by activity added to the first or fixed charge so as to arrive at a true cost of unit performance, whether this latter be founded on a tonnage rating or on a ton-mile basis.

Organisation of the Business.

In former issues we have given series of questions, drawn up with a view to assisting the purchaser in the choice of manufacturer and motor. A further series, affording guidance on other points, is appended.

1. What is the general scheme of organisation?

Information on this subject will generally indicate the business ability of the concern.

2. Is it a one-man or a departmental organisation?

3. How often in the history of the company have the officers been changed?

The stability of the organisation and its product will be largely indicated by the answer to this question.

4. Is the product sold through branch houses or through agents?

The branch house gives the user the advantage of direct intercourse with the maker. The agency scheme involves divided responsibility.

5. How many branch houses are there? How many agencies are there?

Answers to these two questions will indicate the character and policy of the company.

6. What changes have taken place in the agencies since established?

Frequently-changed agencies have a most undesirable and expensive influence on the user.

7. Do agents carry trucks in stock?

If so, their responsibility and reliability is increased.

8. Do they carry spare parts in stock?

The influence of this on the user's cost of operation will be manifest.

9. Have the branches service stations?

If so, the user's cost of operation is assured.

10. Must spare parts be bought through agents or can they be secured direct from the manufacturer?

The former usually increases the cost to the user.

11. How far is the factory? How about freight rates?

These are features which seriously influence operation cost.

12. What service does the customer get in advance of purchase?

This will indicate whether the company has a broad or narrow-gauged policy.

13. Is any assistance given of an engineering nature to determine proper equipment?

This is a vital necessity, particularly where a large investment in truck equipment is involved.

14. Is the product well known and advertised to give it high value as an investment?

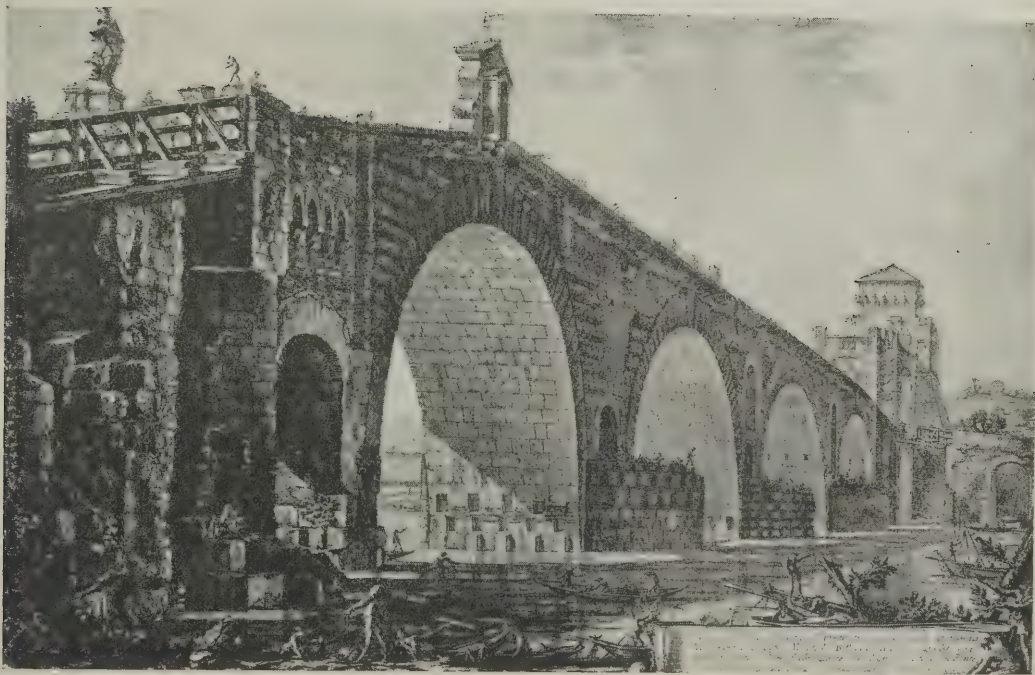
Then used cars will command high prices.

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(From Piranesi.)



DETAIL OF FRONT ENTRANCE TO RUDOLPH LEPKE'S ART AUCTION HOUSE, POTSDAMERSTRASSE, BERL'N.
ADOLF WOLLENBERG, ARCHITECT.

(See page 234.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

SEPTEMBER 3, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 38 No. 973

The Lay-out of the New Delhi.

THE policy of planning a new capital city at Delhi, its significance, and the style of the architecture proposed have been matters of interminable discussion in the Press. It is therefore with more than ordinary curiosity that the plan and report of the Delhi Town Planning Committee are perused.

It must be borne in mind that not only are the physical conditions of the site novel to European practice, but also that the political significance of the problem is exceptional: otherwise the matters to be dealt with are such as are common to all cities. After all, what is in contemplation is but an addition to an existing city, a seat of Government comprising a group of administrative buildings, with residences for the Viceroy, his Council, and their staff. Such requirements are exceptional, the conditions at Canberra, for instance, being entirely dissimilar. To all intents and purposes old Delhi and new Delhi will still be one city, and what we are immediately concerned with is simply the new Governmental quarter. But just as new and important developments frequently attach themselves to old towns, and in doing so are at first interdependent, later becoming independent, so we may assume that the new Government section will gradually acquire an independence of its own. It is an open question whether or not its growth as an independent organisation has been sufficiently anticipated in the plan.

Public buildings, processional routes, dignified approaches, and all the features incidental to civic adornment and calculated to inspire respect for the British Raj are bravely shown; whilst other incidents, no doubt less theatrical but certainly quite as real, are but incidentally indicated. Insufficient attention has been given to the hundred-and-one interests of a community that is to occupy the odd five or ten square miles which it is anticipated the city will in the near future cover, and without which these other things will prove but a dumb show. One rather expected that the report would dwell at greater length on housing problems. Are there to be no streets of houses where the open court will replace the somewhat exotic European garden? Insufficient allowance is made for the many idiosyncrasies of human nature; surely some of the half-dozen different types of residences to be found in the modern British garden suburb will have counterparts at Delhi; surely there will be a demand for some form of residential hotel, and, if so, such features would certainly influence the plan. All that we are led to assume is that the European will have his acre or so allotted to him, and that he will be content to live in a thoroughly official way.

Even mere architectural display is a thing to be encouraged, and we have no desire to underrate its importance; but, at the same time, it must be admitted that other matters of moment have hardly received, in the report on Delhi, the careful consideration that they deserve. Even though the founders of the new city purposely exclude processes of manufacture and the

activities of commerce, it is, nevertheless, foolish to ignore the fact that as an essential condition of its growth Delhi will contain some commercial premises of an advanced type. Surely we would be justified in assuming that, as a city of affluence and influence, it will very soon become a centre for the first business agencies of the Empire; that it will be not only the resort of native princes, but also the rendezvous of the wealth and fashion of India; that it will become the Mecca of the travelled European, the new Cairo of rich invalids, and an Eastern centre to be exploited by the tourist agencies. The ecstasies about the effect of the Government buildings would have been more endurable if, in the report and on the plan, a preconceived arrangement of streets and sites for interests of every kind had been outlined. There are bound to be professional streets, office streets, different classes of shopping streets, amusement streets, and the new Delhi will be a great city of hotels. And whilst it would be too much to expect that every street be definitely allocated to an exact purpose, one feels that well-recognised sociological conditions might have been anticipated, or that, at all events, more definite provision should have been made for them. In point of fact, both report and plan seem to begin and end with a resumé of the immediate accommodation necessary for the Government officials and their staff.

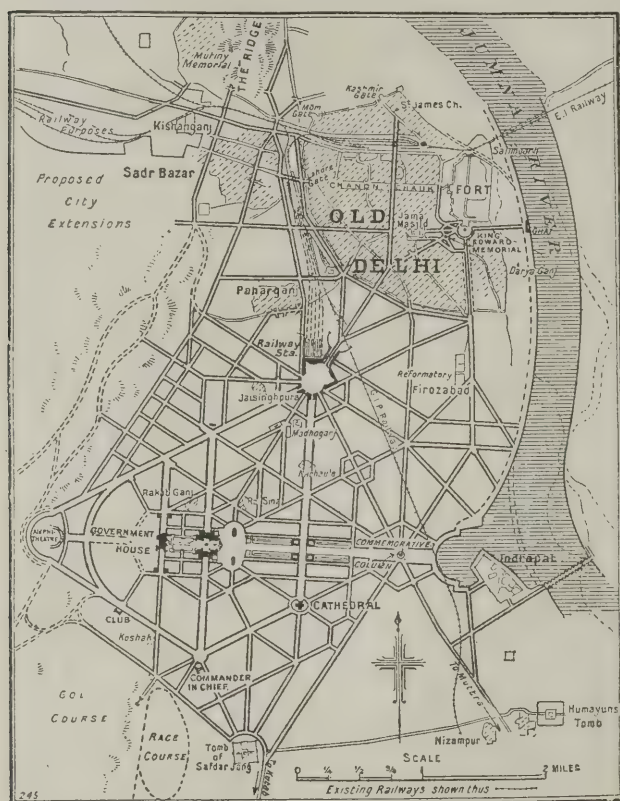
Recent research into the sociological conditions of city life reveals principles of growth of which the early town-planners were not cognisant. We know, for instance, that in nine cases out of ten naturally grown cities having water fronts have at least two important streets parallel to the watercourse, the general retail business of the town being done in the secondary streets. We know that every big city has its Bond Street, its Regent Street, and its Tottenham Court Road. We realise that the most important additions to the modern equipment of a city are its places of amusement and its hotels, and that these, like the residential areas, tend to group themselves according to class.

But, turning from the report, which is certainly weak in its sociological presentation of what is likely to be the direction of growth, let us revert to the plan. Judged as an artistic lay-out, it is extremely disappointing. The site for the Government House and Secretariats, in their relation to the river and to old Delhi, is no doubt well chosen, and the main axis of the Government group, projecting as it does on the river front, is well directed. The terminal station, too, situated at the approach to the new city, and midway between the new and old towns, is well placed. So far as the general disposition of these important sites is concerned, there is no fault to be found. It is when we analyse them in detail that the weakness of the plan is revealed; and not only here, but also in the planning of the general network of streets. Even if the station "Place" be regarded purely as an arrangement of dignified centres and approaches, there is no excuse for its ugly shape. Its ungainly division of interests

evidently arises out of an indecision as to whether the station or the axial approach to the Government centre and the Jama Musjid is of the chief importance. Indeed, a conspicuous fault to be seen throughout the scheme is the seeming uncertainty as to what is of primary and what of secondary interest.

A rectangular or circular station "Place," with main streets at its entering angles, and with its main axis on the station, would have given a symmetrical arrangement for the radial roadways, and would have been a simpler, a more direct, and altogether a better shape.

The so-called "Forum," with its two columns and duplex systems of radial roads, is a good feature, and exhibits ingenuity in planning, but the twin buildings



of the Secretariat, drawn together on what seems to be too small a natural podium, are by no means so happy. They are neither planned as the one building which should dominate the new city and towards which all roads should lead, nor are they properly treated as appendages to the Government House which the composition at the outset would make them. With such a grouping of buildings, the climax of the vista is of course the Government House, and as such, not only is it bottle-necked by the twin Secretariats, but it is also hidden from view by the podium or acropolis upon which they stand, the level of the ground here being very much higher than at the Government House. The grouping of these buildings is distinctly bad, and shows indecision both as regards what should terminate the Mall vista and what should dominate the town. Nor is the Mall—the main approach from the river—in itself altogether satisfactory. It is quite spoiled by the projecting insertion of an unfortunate group of buildings described as the Intellectual Centre, at a point where to all appearances what ought to have been a continuous and unbroken way is cut into halves.

But of all the defects to be found in the lay-out of the plan, viewed æsthetically, the most obvious is the way in which the main street from old Delhi and the station terminates before it arrives at its destination—the Secretariat group. Indeed, the awkwardness of this and other road connections about the Forum is inexcusable.

It would be unfair at this stage seriously to criticise the alignment and connection of every secondary road, many of them showing such thoroughly bad planning that one cannot regard them as other than mere indications. The authors of the plan would have been better advised to indicate separately what was definitely proposed and what merely suggested. We must infer that the gridiron planning below the ridge, destined for the residential area of the Indian clerks, is more or less diagrammatic; as also is, we assume, much of the rest of the filling-in. Otherwise one cannot help feeling concerned about the number of flat-iron sites (especially where there will be important buildings); while the extreme formality of the whole plan gives rise to further misgivings, curved roads, except on the Ridge and along the river front, being entirely absent. Individual interests, and the dictates of physical features, ought surely somewhere to have been recognised.

Considerable attention has evidently been given to the treatment of the river, and the construction of a river front has been tentatively put forward as an item in the programme. If this feature is seriously contemplated, and if, as the plan suggests, the erection of buildings here is contemplated, then it will be a fatal mistake to arrange for the residences of the Indian chiefs and nobility along the road from the Delhi gate. Take any river-fronted city in the world, and where do you find such occupancies? Certainly not in this secondary position.

If ever this new Delhi develops beyond the possession of a Government House and its immediately associated streets and buildings, it is clear that much more consideration will need to be given to the individual requirements of those to whom will be allotted sites, and this will necessitate a good deal of alteration to the plan. But there is no desire to labour adverse points of criticism; for, after all, the plan in its present condition cannot be regarded as more than a diagram, and no doubt most of the faults that have been mentioned will be corrected as the work proceeds. As has already been implied, the principal features seem generally to have been put in the right place, and certainly the whole conception shows a boldness of handling and an appreciation for scale which it is to be hoped will not be spoiled in execution through paucity of means. Mr. Lutyens is to be congratulated on being commissioned to carry out the more important of the Government buildings. The strength of his convictions in insisting upon making the style British rather than Indian, against very strong opposition, is greatly to be admired.

S. D. A.

Vanishing Regency Architecture.

UNLESS active measures are taken, London within the next few years, will have lost virtually all demonstrative record of an intensely interesting episode in the history of her architectural development. We refer to the stucco architecture of the Regency, which is rapidly disappearing. Regent Street, the supreme achievement of Nash and his associates, now bears only a slight resemblance to the thoroughfare of the early nineteenth century, and before long it will be altogether beyond recognition. Within recent years whole sections of the street have been totally demolished, and at the present time other large portions are falling before the onslaught of the housebreaker. Nash may have "found us all brick and left us all plaster," but it will be generally conceded that he was unfortunate only in his material, and that his designs were well worthy of interpretation in the enduring stone; for the work of Nash and his compeers was invariably distinguished by good proportion and attractive detail, in the design of which the Regency architects possessed a peculiar talent. It is with much regret, therefore, that we watch

its rapid demolition constantly going on. It is, of course, only natural that these buildings, provided nearly a century ago, should fail to satisfy the requirements of modern commercialism, and from this point of view the destruction, if not altogether justified, is at least excused. But from the architectural standpoint there is but small consolation. If it be found impracticable to preserve the remaining work intact, an effort should be made to rescue some of the details, which might be appropriately accommodated in Stafford House, the new London Museum.

Mr. Money and the Building Industry.

THAT omniscient publicist, Mr. L. Chiozza Money, has of late turned his attention to the building industry, but with all his almost uncanny cleverness he has not yet succeeded in indicating any practicable means of rescuing it from its parlous state. For instance, while it is doubtless a very arresting thing to say that although we build and destroy warships with extraordinary rapidity, we allow "millions of houses to drag on to a dirty old age, injuring the health of large parts of the community, and creating work for the medical profession and the National Insurance Act," yet this is to compare things that are essentially dissimilar. Scrapping obsolete warships is an Imperial necessity and duty; but unless Mr. Money is prepared to push his parallel to its logical (and absurd) conclusion—that the State should become the owners of all the slum property in the kingdom, then promptly scrap it, and immediately set the builders to work on up-to-date substitution—his argument is merely picturesque. Its practical value is about equal to that of his suggestion of panelling instead of papering for working-class dwellings, the comparison, in the latter instance, being apparently based on the supposition that the wall-paper commonly used in workmen's houses costs a shilling per piece, a price which is at least as wide of the mark as a correspondent's sarcastic comment that three ha'pence a piece is a figure with which the jerry-builder is much more familiar. While Mr. Money can offer us no better suggestions than these, we cannot hasten to hail him as the heaven-sent saviour of the industry.

Minor Street Architecture.

SOME time ago, we threw out casually a suggestion that the tops of the trams and buses afforded an excellent means for a rapid review of London street architecture. Rather to our surprise, the idea was taken up with a good deal of enthusiasm. There is, however, in every district what an accomplished contributor calls a Hinterland apart from the main-travelled roads, and less disturbed than they either by the turmoil of traffic or by the hand of the innovator. It is the main road that is "improved" out of all knowledge and, alas! out of all decorum. "Progress," rampantly destructive in the highways, leaves the by-ways almost unscathed; for with streets, as with men, obscurity has its compensations. Consequently, the Hinterlands of London are rich in survivals of interesting phases of street architecture. The examples that from time to time we have illustrated show very clearly that the minor architecture of London deserves more attention than it had previously received. There is, for instance, much modest charm, of *ensemble* as well as of detail, revealed in the illustrations to "The Hinterland of Euston" which we publish in the present issue. From these, and from examples previously given, two points stand out very clearly—first, that almost everything worth looking at in the minor street-architecture of London is instinct with classic feeling; and, secondly, that in every instance in which Greek details are judiciously introduced, they invest the humblest service with incomparable grace and dignity.

A "Deposit" System Fraud.

SO common is the demand for a money deposit from architects invited to apply for particulars of competitions, or from contractors who are asked to submit tenders, that occasional abuse of the practice is not surprising. Annoyance at unconscionable delay in returning the money is, generally speaking, the worst that need be apprehended, and, where corporations are concerned, the worst in this kind is too often realised; but then the deposit is at least safe, and the sender knows that at any rate it will eventually benefit his heirs, even if it does not some day come back to him long after he had been glad to forget everything connected with the unsuccessful adventure recalled by the tardy return. Mere "gouty-handed" reimbursement, however, is simply an occasion for patience. What is really repugnant in the system is the facility with which it lends itself to fraud. Cases in which the architect or builder is made a victim of this variant on the confidence trick are more frequent than the published annals show, the victim often preferring to suffer in silence rather than to proclaim himself a gull or to "throw good money after bad" in the effort to track down the slippery scoundrel who has defrauded him. That in such cases prosecution is a positive duty should become more clearly apparent from revelations at the London Sessions last week, where a man was awarded fifteen months' hard labour for his share in a cunningly concocted swindle of the kind. He, with another gentleman who could not be traced, got out a circular inviting tenders "for a term of three years for the general repairs and alterations required from time to time for the upkeep of about 5,000 shops, dwelling-houses, and other properties in London and surrounding districts," and contractors wishing to tender were required to deposit one guinea for each district for which they wished to tender, the deposits to be returned on receipt of bonâ-fide tenders. Of course the estates were non-existent, and the incident should put architects as well as contractors on their guard as to the opportunities for fraud to which the deposit system is so easily adaptable. We should like to see the system abolished.



DORIC PORTAL, EUSTON STATION (1837).
THOMAS HARDWICK, ARCHITECT.

(See next page.)

THE HINTERLAND OF EUSTON.

[*Specially Contributed.*]

THOSE who nightly seek some rural retreat northerly, beyond the sensitive tentacles of this far-flung metropolis, travel on one or the other of the four trunk lines which terminate on the New Road. Oh, merciful pedant, forgive my respect for eighteenth-century nomenclature: the modern name is unpalatable. Euston Road to me is a raw, unfinished thoroughfare! New and unpalatable it was to that short-sighted Duke of Bedford who opposed its making, its surface newly remade when the old Metropolitan Railway Company took the road completely up to lay their drain; and of a raw newness are the structures one dare not designate as architecture, which spring into being with a rapidity akin to the spread of fungus.

Yet, the thoroughfare is an interesting one, rich in architectural and other associations, containing as many monumental masons' yards as formerly disfigured Piccadilly; and despite its usefulness as a main artery for traffic, it remains a standing monument to the apathy of those who direct the shaping of London. Two lines of railway serve my needs—one is Classic, the other Gothic. Sometimes the Vulcan-haunted Classic temple demands tribute; on other occasions, in more reverent mood, the mighty vault of the Gothic cathedral moves me to sympathy. For years the magnetic influence of convenient trains proved the greater attraction; even if one possessed the intuition that a vast district existed between the two arms of the steel roads, the drab monotony of the serried streets bade one haste to seek fields of freshness, and coward-like one rushed away.

A week ago, while crossing the threshold of the "northern gateway," my tutelary demon whisked the

cobwebs from mine eyes. No longer was I a free agent, but forced willy nilly to explore the immediate purlieus. And I rejoice that I did so. From the monument to early railway enterprise the gentle declivity of Drummond Street forms the approach to the heart of Somers Town; and from a 'vantage point near the peaceful sign of the Lion and Lamb two scenes arrest the eye. The first is the western perspective of the street just traversed, one of those surprises this mother of cities holds in store, even for those who think her secret fathomed; the second is the sweep of Drummond Crescent. Surely this is Dublin; these cube shapes of low houses rising on either side; and that distant temple, which tops the summit, arresting the irregularity of the skyline with startling thoroughness, what can that be? St. Something or the other? No! it is the much-vaunted portal, which a few years ago the housebreakers refused to demolish; that despised Brobdingnagian white elephant, worth, as an advertisement to a benevolent board of directors, untold specie. A gateway receiving many travellers, a modern tolmen, cromlech, propylæa, call it what you will, through which men pass to America and the beyond. Black and shabby is this street, but interesting withal. Small shops struggle almost against hope with pathetic persistency, the sombre denizens cling close to the stacks of spears, guarding each dangerous area; the rapid traffic and flow of life spurns this quarter. Thus we enter the "shy neighbourhood" beloved of Boz.

Gone are the pleasant walks and groves of the once pastoral spot, which tempted the planning of this from the outset shabby-genteel locality. Lord Somers owned the land and Jacob Leroux became the princi-



GRAFTON TERRACE, SEYMOUR STREET: AN ECHO OF EUSTON SQUARE.

pal landlord, erecting a fine house for himself. For a time the fields presented the aspect of a vast brick-field, then streets took shape and the Polygon arose within a square. Churchway Walk is the link between Drummond Street and Chalton Street, a diminutive emporium, worthy overflow of the greater market. Features of early nineteenth century date are here encountered, shop fronts detailed in imitation of old Greece, and a central kennel in the alleyway. Chalton Street is the general store, the local "Middlesex Street"; half of its length is occupied with stalls, the other half is distinguished by the trim housefronts of late eighteenth century date.

About thirty years ago, some piously minded artist, influenced no doubt by the noble example of the numerous dissenting chapels, strove to convert the pagan character of the street and planted the seeds of Gothic, but the pagans still have it. At No. 75, a small doorway of Adam vernacular cheerfully announces a superiority of dressing. Almost adjoining is another of like design, which, heavily veiled in paint, shows the veining of unknown marble. All the houses are let in tenements, at the windows the occupants take the air; window boxes and greenery are signs of affluence. On the east side of Chalton Street are three houses, Nos. 55, 57, 59. Here one greets the smiling head of Dionysus and the martial head of Minerva, keystone and imposts bought ready for use from the Lambeth works of Mrs. Coade, and sold to the little builders of the day by her manager, Seely. At No. 63 there is a pretty door replete with shell fanlight and knocker.

Calling to mind the rapid rise and decline of this district, the notes of a writer in the "Gentlemen's Magazine" for the year 1813 are valuable. He mentions, "On the death of Mr. Leroux the property was submitted to the hammer, numbers of small houses were sold for less than £150, at rents of £20 per annum each. The value of money decreasing at this time, from thirty to forty guineas were demanded as rents for these paltry habitations; hence everybody who could obtain the means became a builder: carpenters, retired publicans, leather workers, haymakers, etc., each

contrived to raise his house or houses, and every street was lengthened in its turn. At this date the population consisted of a large number of poor French refugees, and such were their needs that the Catholic chapel of S. Aloysius was erected in 1808 in Clarendon Square, the Abbé Carron being the founder and priest for many years. The Polygon, as shown on the Ordnance maps of past years, was a curious example of town planning. Clarendon Square was such in name only; the twin houses linked by low, one-storeyed porticoes occupied the space usually given to trees and shrubberies. Now, Polygon Buildings stand in dual groups; the radiating brick walls of the back gardens have long since been swept away. At the corner of Charlton Street and the Square there are three important brick houses approached by means of spacious steps; again the resemblance to parts of Dublin asserts itself, especially the quot of children each landing carries.

At one period in its chequered career Clarendon Square boasted residents with a claim to ultra-gentility, if the wrought-iron lampholders on the eastern side speak true. No. 25 is by far the most architectural as well as the largest residence; stateliness of scale, the exacting character of the doorway, the intellectual superiority of the rigid façade, doubtless aided the exclusiveness and checked would-be tenement dwellers. Adjoining this lordly mansion stand the modern St. Mary's Schools; Stibbington Street is near by; Phoenix Street, Gee Street, and others form emergency exits. The south-east corner is threaded with the wharfage of railways, rising from the ashes of the fallen ramparts which twenty years ago fronted Pancras Road.

The Midland Railway still holds allegiance to the spirit of Sir Gilbert Scott; even the newest erected coal bays falsely pose as Gothic arcades. Ossulston Street is practically deserted, and, except for the Greek façade of the Marquis of Granby, contains little other interest. The principal elevation dominating the eastern prospect is the series of vast gas caissons, which prompted the facetious name "St. Pancras de Gas-



CLARENDON PLACE: A HIDDEN LONDON VILLAGE

ometer." So much for the past, and now for further discoveries. Clarendon Place is approached from the western side of the square, from under a low arch; it is a little self-supporting colony of diminutive cottages, each proud of its herbaceous border, separated by wooden palings; it boasts its own modest general store, and only needs gates to shut at night to be as private as the familiar legal haunts near the Thames. From here one views the Clearing House, built by Philip Hardwick in 1842, and muses on the refining hand that schemed such utilitarian masses. Stibington Street leads one to the unsympathetic walls of Charrington Street; the date 1844 on the pediment causes one to accelerate pace; this street is long and unlovely. But it leads to the gracious church of St. Matthew's, Oakley Square, the spire of which is of beautiful line; here the scene is more pretentious, but not so interesting. The earlier cheap rents caused



DOORWAY, THE CLEARING HOUSE, SEYMOUR STREET:
STYLE OF CHAMBERS INTERPRETED BY PHILIP HARDWICK.

many poor artists and literary people to take up their residence in Somers Town. Leigh Hunt describes it charmingly in "Sunday in the Suburbs," "Then his boots! Look at him. There he goes up Somers Town." Dickens once named Somers Town "The Little Connemara." He spoke with prophetic instinct. Posters printed in striking green capitals warn the men of Ireland to stand by Home Rule.

Such a district as the one traversed is to me an enchanted realm of artistic effects; people and trees, human interest and architecture, are of that strangeness which Bacon declared to be akin to Beauty.

R.

Note.—The accompanying photographs have been taken by Mr. Lovett Gill.



13, CLARENDON SQUARE: A MODEST DOORWAY, WITH
COADE'S PATENT STONE ENRICHMENTS.



25, CLARENDON SQUARE: GREEK DIGNITY.

HERE AND THERE.

LORD FERRERS, as hon. secretary of the Society for the Protection of Ancient Buildings, is anticipating (not to say looking for) trouble at Christchurch Priory. It seems that the vicar and churchwardens have accepted a bequest of £5,600 to "restore" the Lady Chapel, and Lord Ferrers fears that only mischief can arise from the expenditure of so large a sum on so small a chapel. He throws out the excellent suggestion that the interest on the amount would be sufficient to keep the chapel in repair for all time, but possibly the terms of the bequest would not be satisfied by the adoption of so sensible a course.

Any sensible use made of any bequest whatsoever would overcome us as a glad surprise. Unearned increment is commonly fooled away. This phenomenon is so well known to the S.P.A.B. that the announcement of a bequest with respect to an ancient building puts them at once on a hot scent. They know that it is distinctly a case for first aid. Within recent years the Protectionists have magnified their office threefold and their activities thirtyfold. Aforetime they were wont "to wait and see," and get in their grumble after the alleged mischief was done. The next stage in their evolution was to report adversely on work in progress. Now they have adopted the up-to-date hustling method of protesting well in advance of operations; and as it is not at all likely that this last-named practice will be allowed to supersede the other two, we may joyously look forward to some lively dialectic "before, during, and after treatment." The comedy is in three acts: I. Anticipation; ii., Realisation; iii., Recrimination; the curtain falling on a denouement which amuses the spectators, but annoys the actors.

It is this delightful possibility that the societies may get a Roland for their Oliver, which reconciles an easily amused, and as easily bored, world to the everlasting protestations of the anti-scrape apostles. Too often the antagonists in a restoration controversy are very unequally matched, and then the spectacle of the trained controversial athlete jumping on his unresisting opponent's prostrate body is anything but exhilarating. It is annoying, and even distressing, to see the meek restorer missing glorious opportunities of effective retort. "Perfect silence when they brawl" may be a dignified policy, but it spoils sport. Fortunately, the intervention of onlookers is among the most delightful possibilities of these racy restoration comedies (may the shades of Congreve and Wycherley forgive me the misapplication of this consecrated phrase!). Even if the protection societies never succeeded in their main object of insuring that ancient ruins shall become more so, their existence would be justified by the attention they draw to obscure buildings that would otherwise have wasted their sweetness on the desert air, and might have perished utterly without our ever knowing how great a bereavement we had suffered when their disintegrated remains were carted off to build pigsties or to pave roads withal. It is only when the misguided restorer's wicked attempt to save it is vigorously opposed by some preservation society that we become aware of the precarious existence of the building, and of the society which dogmatizes so freely as to the only authentic means of salvation.

The ensuing debates in the newspapers bring forth many good things with which we would not willingly dispense; as, for instance, Mr. A. C. Benson's delicious irony and robust common sense in the communication upon which "Ubique" drew so generously last week. And when such correspondence assumes any degree of importance, either by its volume or by its quality, the

subject is sure to be dealt with *ex cathedra* in the Press; as, for example, when the case stated by Lord Ferrers was made the occasion of a "Times" leader. It is then that the immediate issue is revealed as a thing of naught in comparison with the mighty principles it has the honour to illustrate when the leader-writer stalks forth with pomp and circumstance to confound the arguments of meaner men.

Born preacher that he is, your dignified leader-writer disdains adherence to his text, which, having served its sole purpose of setting the great mind a-going, is callously forsaken, the big bee buzzing over the garden and sometimes beyond its confines, in further search of philosophic honey. Hence the "Times" writer, soon leaving Lord Ferrers and Christchurch Priory far behind, hovers momentarily and lovingly on the haloed head of William Morris, who, having discovered that the better the modern glass, the less its fitness for the windows of the Middle Ages, refused to put his glass in old windows. Then, for the benefit of Mr. Olaf Carøe, who had written: "Specimens of the old glass exist as a fact, and as we must, unfortunately, have copies, let us have good copies, not plagiarism," a stiff question is asked and some stiffer propositions are enunciated: "But why must we have copies? A stained glass window, since it is a decoration, not a structural necessity, is a work of art or nothing; and the copy of a work of art is not the same thing as a work of art. Mr. Carøe says it can be exact; but if it can, then the original is not a work of art."

One had almost expected to see at the end of these laconics, either "Loud cheers," or "The discussion is now closed." For my part, however, I make bold to contradict flatly every article in the oracular pronouncement. It must be all wrong, because it wears so severe an air of absolute finality. To defend the negation, however, were a task too monstrous to be undertaken during the hot weather. To atone for my momentary scepticism I will quote with modified approval some *obiter dicta* that should appeal with peculiar force to Mr. L. March Phillipps, and may be safely re-addressed to him, care of the "Morning Post": "The public is so inured to restored Gothic that it has learnt to like sham Gothic better than real architecture in any other style. Gothic is commonly supposed to be the religious style of architecture; though nothing can be less religious than sham art of any kind, for no one would produce it if he were not paid for it. In the prime of Gothic, religion found an expression for itself in architecture and all the subsidiary arts; but that expression was peculiar to its own time, as artistic expression always is. It came to an end when there was a change in the minds of men, and our minds are still further changed. Our business now, when we build churches, is to find our own artistic expression of our religion; and that, difficult anyhow, will remain impossible so long as we imitate an expression of the past. The old buildings satisfy us just because they are expressive, and not at all because they happen to be Gothic in style. But whenever we make our own imitative additions to them we lessen their power of expression and our own power of enjoyment."

I have expressed modified agreement with this: but the more I look at it the less I like it. True, it scores heavily off Mr. March Phillipps, and all such as are obsessed or besotted of Gothic; but, on reflection, I perceive that it is meant to hit me no less staggering a blow; for to depress Gothic and Néo-Gothic is not necessarily to raise up Classic and Néo-Classic. Thus, again, the site is cleared, but the vision is obscured.

NEMO.

OUR PLATES.

Rudolph Lepke's Art Auction House.

CONTINENTAL architects show an enviable facility in the recommendation of Classical elements. In the façade of Rudolph Lepke's Art Auction House (it is curious that in England we always speak of auction rooms, or of an auction mart—the famous Mart in Tokenhouse Yard apparently suggesting the alternative term) the architect, Herr Adolf Wollenberg, demonstrates both the vitality of the Greek spirit and the facility with which it can be adapted to modern circumstances. It is alleged with wearisome reiteration that the close student of Classical architecture becomes almost necessarily a mere copyist. Work like that of Herr Wollenberg disproves the fallacy. It is only the weakling or the sciolist who is the slave of his resources. Mastery comes of a thorough familiarity with them, and then we get the vitality, individuality, and modernity which cannot be denied to Herr Wollenberg's work. Our example is reproduced from "Charakteristische Details von Ausgeführten Bauwerken," which is a section of an important collection of examples of twentieth-century architecture, edited by Professor Dr. Hugo Licht, Stadtbaudirektor of Leipzig. The current issue contains forty finely printed plates, 12½ in. by 18 in., and is published by Ernst Wasmuth, Markgrafenstrasse 35, Berlin. It will be observed that our illustration is considerably reduced in size as compared with the original, which is perhaps somewhat over-large for convenient handling and storage. (See p. 226.)

Opéra Comique, Paris.

As the Centre Plate in this issue we illustrate an exterior view of the Opéra Comique, Paris, erected from the designs of Louis Bernier. This building, situated in the Place Boieldieu, is of singularly strong design, and is one of the boldest compositions that modern Paris has to show. The detail, all of a character appropriate to the building's purpose, is very vigorous, and displays considerable originality, the masks, representing Comedy and Tragedy, being effectively introduced into the capitals.

Faculté de Droit, Paris.

We illustrate on page 235 a detail view of the Faculté de Droit, Paris, erected in 1771 from the designs of J. G. Soufflot. Jacques-Germain Soufflot was born in 1709, and began his studies in Lyons. He was one of the most distinguished architects of the eighteenth century, and there are few parts of France that bear no evidence of his work. After three years in Rome, Soufflot went to Asia Minor, returning subsequently to Lyons, where he superintended the building of the Church of the Chartreux. In 1749 he was admitted to the Academy of Architecture, and five years later he was entrusted with the reconstruction of the Cathedral of Rennes. In 1757 he prepared the designs for Sainte-Geneviève (now the Panthéon), his greatest work, the building being advanced as far as the base of the dome when he died in 1780.

Additions to Belmont, near Chesterfield.

Belmont, near Chesterfield, before the recent alterations and additions were carried out, from the designs of Professor C. H. Reilly (in conjunction with Messrs. Potter and Sandford, of Sheffield), was a farmhouse about two hundred years old. Reception rooms were added about fifty years ago, together with a mean staircase, which has now been removed. A new entrance hall (see page 237), lobby, and billiard-room have been built in addition and also a main staircase. The old kitchens which were in the farmhouse portion have been converted into a dining-room, with its adjuncts. The lowness of the ceiling in the old kitchen determined the treatment of the dining-room, which is panelled in oak (see page 239).

Entrance to Country House, Englewood, N.J.

A working drawing of the entrance to a country house at Englewood, N.J., designed by Messrs. Davis, McGrath, and Kiessling, is reproduced on pages 240, 241. With its thin and delicately fluted columns and carved frieze this doorway is strongly reminiscent of the vernacular "Colonial" work of which America possesses so many delightful examples. The doorway and architectural details are of wood, the fanlight and the panels between the columns, on either side being filled with leaded glass. We are indebted to "Architecture" for our illustrations.

CORRESPONDENCE.

The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.

Correspondents are asked to be brief, and to write on one side only of the paper

The Planning of Cottages.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—From time to time there have appeared in THE ARCHITECTS' AND BUILDERS' JOURNAL many plans and illustrations of cottages, some, as those submitted in your recent competitions, acknowledged to cost familiar amounts, and others stated to cost the very low sums that we hear are sufficient.

I am venturing to enclose herewith plans of a detached cottage that has been erected with distinct success in Surrey, and, although as to cost quite economical, it cannot claim to belong to the second class I have mentioned. My experience, gained by several experiments, has been that this cottage cannot be completed within, at any rate, thirty miles from London for less than from £275 to £300, if really sound work and reasonable finishings and fittings are to be allowed for.

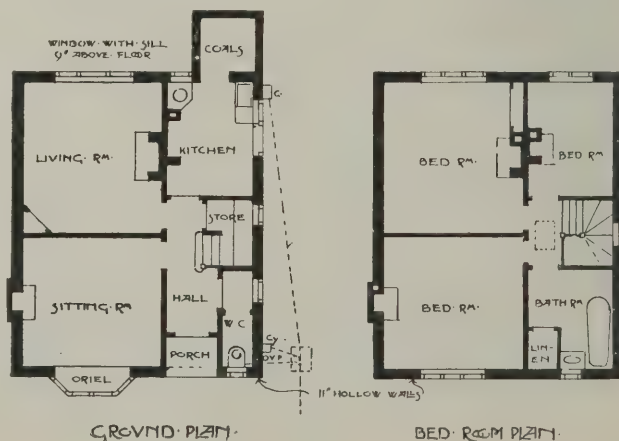
Perhaps the only questionable feature indicated by the plans is the position of the w.c., but in practice this has been found quite satisfactory, it being especially well ventilated, and care being taken to provide a flushing cistern as nearly "silent" as possible.

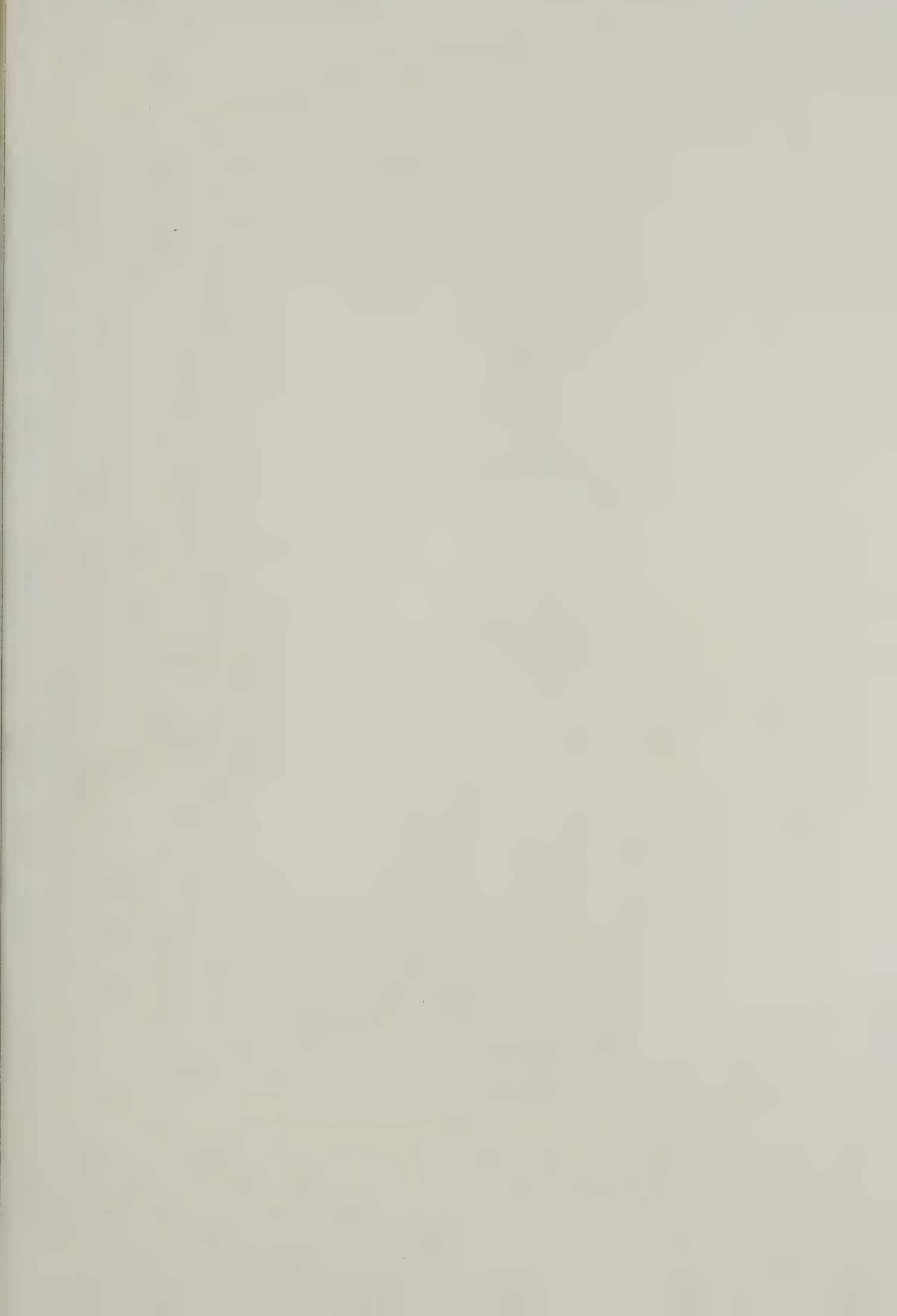
Cottages which have been erected from the enclosed plans have been constructed with hollow stock brick walls, limewhited externally, with sand-faced tile roofs and tile-hung gables. They have been completed internally with modern hearth fires, picture rails, oak window boards and oak threshold-pieces to all doors.

In the living room a compromise has been arrived at between a French window, which is very liable to make a room, and especially a small one, cold and draughty, and a common casement light, by setting the window-sill about 9 in. above the floor level and making the centre light sufficiently wide for a person to pass through, a few steps fixed outside being all that is required to give direct access to the garden.

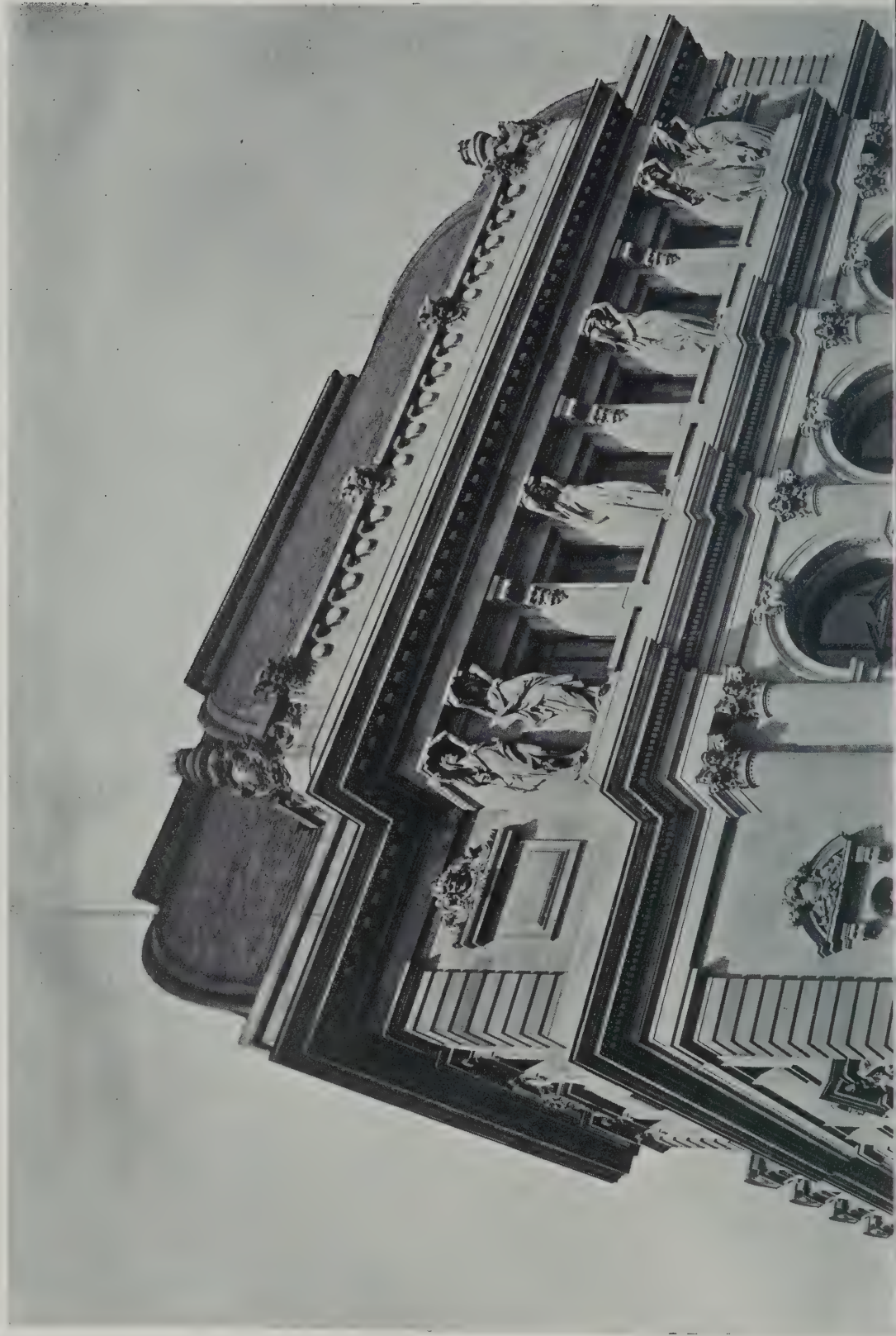
Cobham, Surrey.

ARTHUR BAILEY.



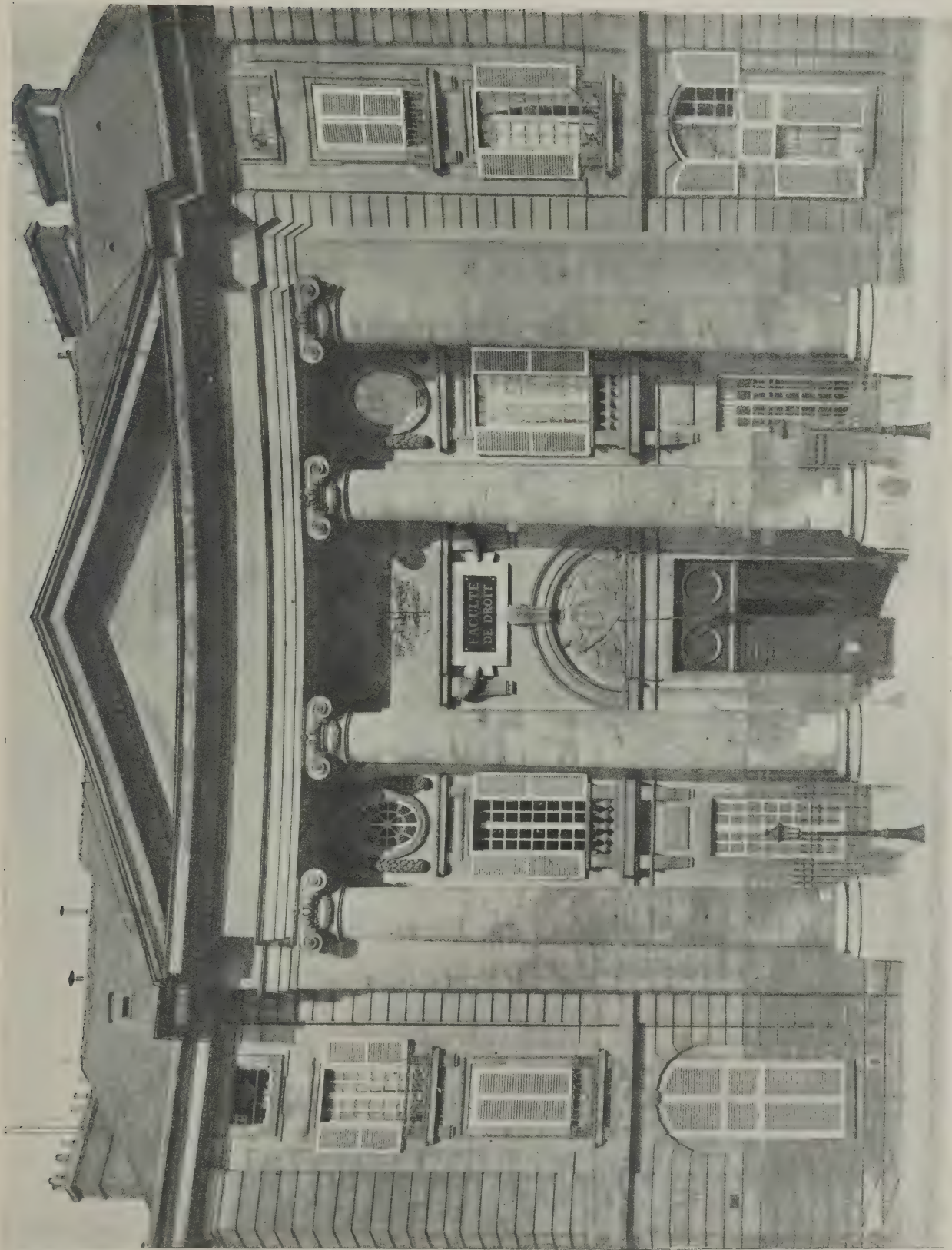


Supplement to THE ARCHITECTS' AND BUILDERS' JOURNAL, Wednesday, September 3rd, 1913.



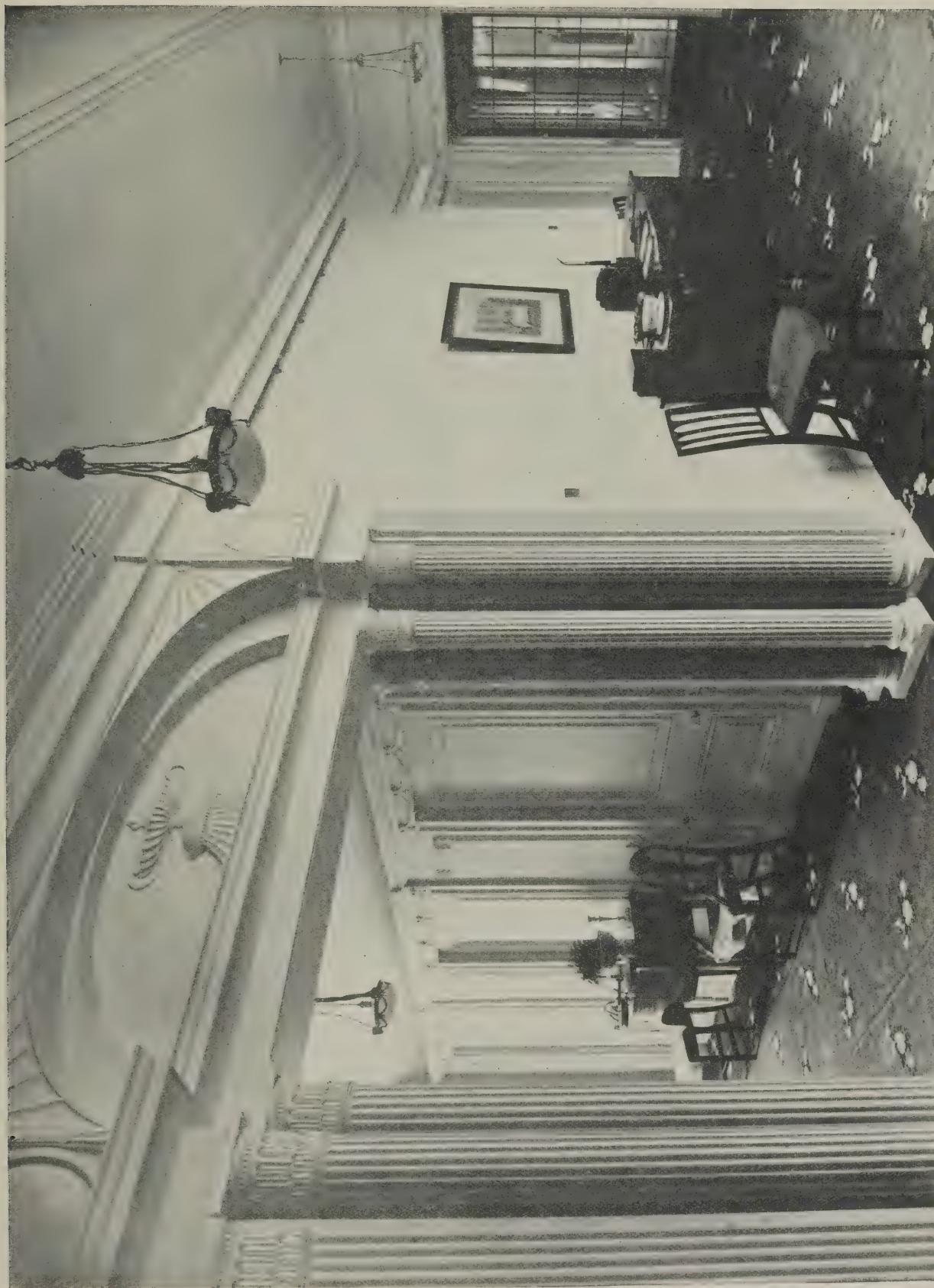


OPÉRA COMIQUE, PARIS. LOUIS BERNIER, ARCHITECT.



FACULTÉ DE DROIT, PARIS (1771). J. G. SOUFFLOT, ARCHITECT.

(See page 234.)



BELMONT, NEAR CHESTERFIELD: THE INNER HALL. C. H. REILLY, M.A., F.R.I.B.A., ARCHITECT.

(See page 234.)

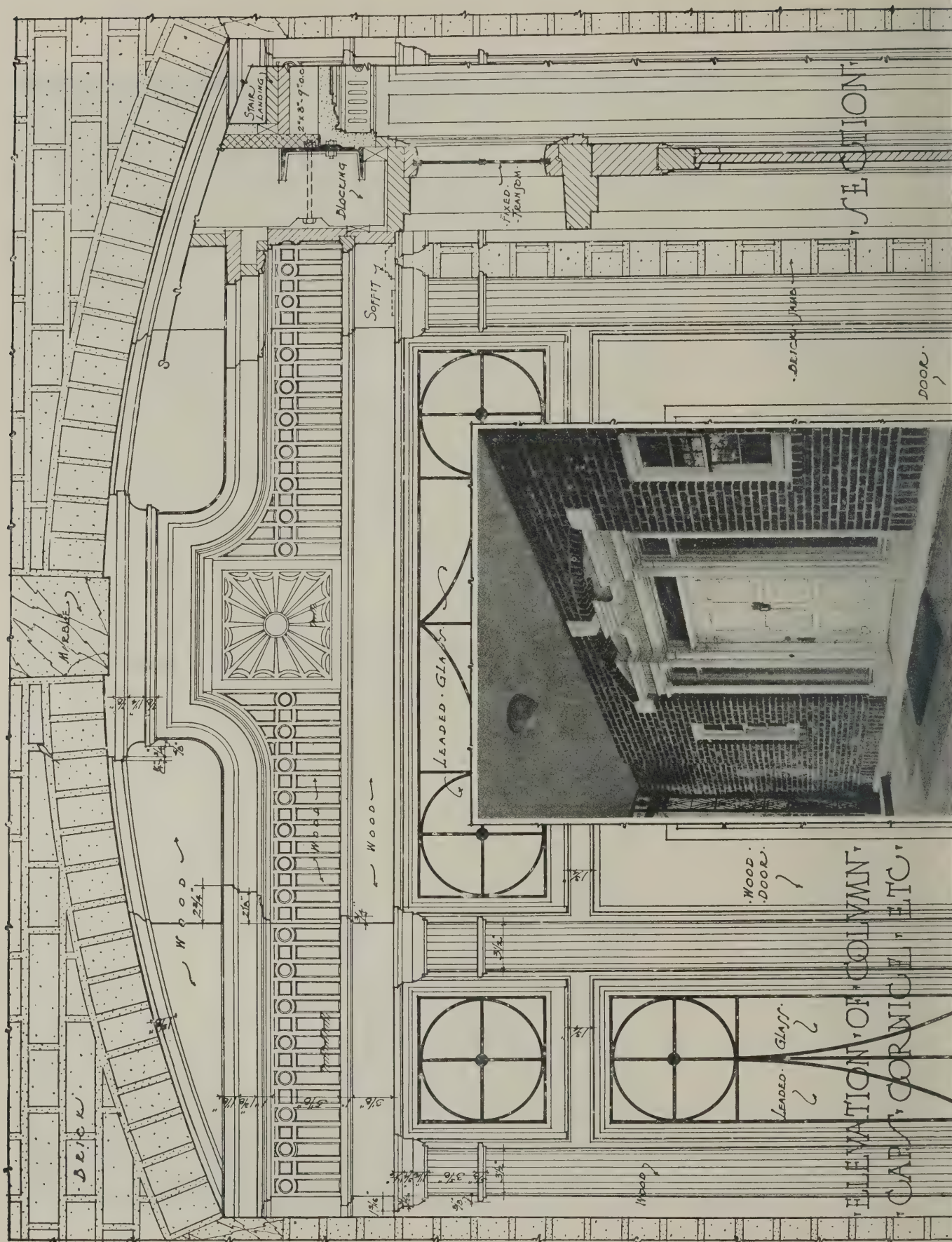
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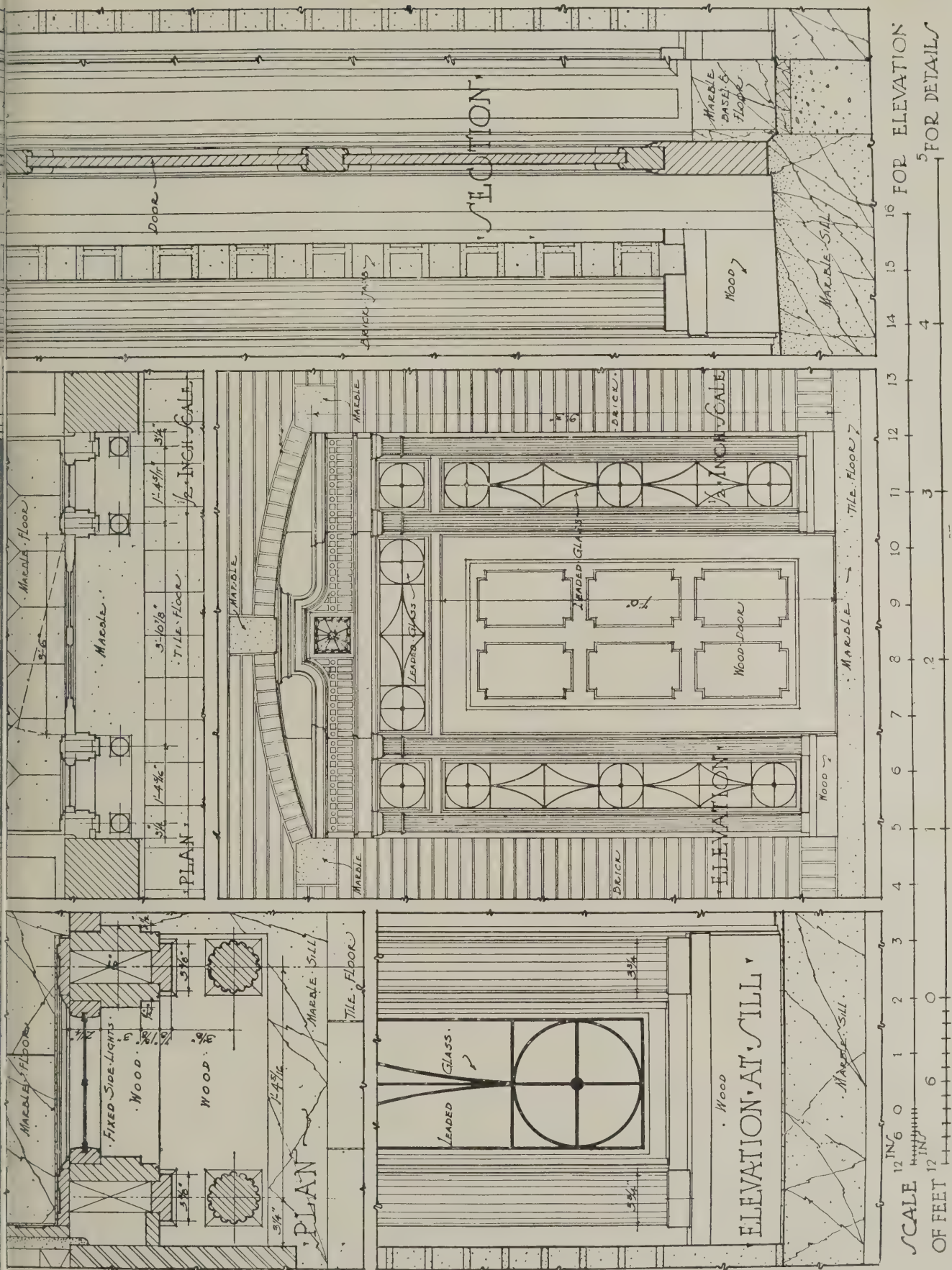
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BELMONT, NEAR CHESTERFIELD: THE DINING-ROOM. C. H. REILLY, M.A., F.R.I.B.A., ARCHITECT.

(See page 234.)





WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS. XXXVII.—ENTRANCE TO COUNTRY HOUSE AT ENGLEWOOD, N.J.

DAVIS, McGRATH, AND KIESSLING, ARCHITECTS.

(See page 234.)

THE R.I.B.A. FINAL EXAMINATION: MODEL ANSWERS.

BY C. PERCIVAL WALGATE, A.R.C.A., Lond. (Architecture), A.R.I.B.A., Grissell Medallist, 1910, R.C.A. Travelling Scholar.

(Continued from page 219, No. 972.)

SUBJECT (e).—THE ORDINARY PRACTICE OF ARCHITECTURE, INCLUDING SPECIFICATIONS AND THE LAW OF CONTRACT.

1½ hours allowed. Seven questions to be answered.

1. A contractor under the R.I.B.A. contract, having got into financial difficulties in his business, has exceeded the time for completion, and the work is almost at a standstill. State what remedy the contract affords the client, and give in detail the procedure laid down for the architect.

Answer.—The architect, on behalf of the employer, may give notice in writing to the contractor, either delivering same or sending it by registered letter to his business address, requiring that the works be proceeded with with reasonable dispatch. Such notice must not be unreasonably or vexatiously given, and must signify that it purports to be a notice under the provisions of the contract. It must specify the default of the contractor upon which it is based. After this notice is given, the contractor shall not remove from the site or works any plant or materials belonging to him and placed there for the works; and if the notice is not complied with within the period stated in the contract—usually about 31 days—the employer may take possession of the works and retain for use all plant and materials there until the works are completed. He has power to engage others to do the work, and exclude the contractor and his servants from the works. Upon completion of the work, the architect certifies the additional expense caused by the contractor's default, and deducts it from any moneys due, or failing this, the employer must recover it by process of law. At completion, notice must be given to the contractor to remove the plant and surplus material, and if he does not comply within a reasonable time they may be sold and the proceeds, less the expense of removal and sale, handed over to the contractor.

2. There is being erected a long building a storey higher than the one existing. At the back of the new building there are the following properties: (a) A private dwelling-house. (b) A newly erected dyer's shop. (c) A diamond merchant's offices. (d) A waste-paper store. The occupiers of all threaten proceedings for obstruction of their light. Give your professional opinion upon the probability of a claim being established in each case.

Answer.—The question as set describes a changed neighbourhood with a mixed trade carried on in it, and consequently the occupier of the private dwelling-house could not substantiate any claim. The dyer's shop, being newly erected, can have no right of light, which is established by 20 years' enjoyment of it. The diamond merchant may expect some compensation for loss of light, but, owing to the change in the neighbourhood and the general rebuilding to greater heights to cover increased ground value which occurs in such a case, cannot retard building operations. The waste-paper store requires little window area, and as much

wall space as possible for storage, so probably no compensation would be obtained.

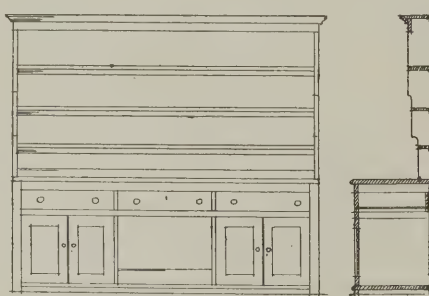
3. An architect obtains an estimate for special steel construction for a building, has it included in the bills of quantities and contract, and later instructs the general contractor to accept a contract in similar terms. During execution the steel contractor is much behind time, and keeps back all the other trades. The general contractor informs the architect that he considers he is not legally liable for the delay, and proposes to stop the whole work if it continues. What should be the nature of the architect's reply?

Answer.—That he is legally liable and that if he stops the work he is liable under the contract to the procedure outlined in Answer No. 1, since the work is included in his contract and the architect instructed him to bind the steel contractor in similar terms to his own.

4. An architect inspecting the building in progress condemns certain work as being defective in materials and workmanship, and orders the builder to substitute other materials and workmanship to his satisfaction. The builder declares that both materials and workmanship are thoroughly good, and that he will not remove them. What procedure should the architect adopt under the Institute conditions of contract?

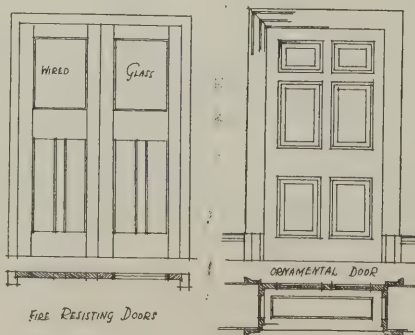
Answer.—Advise the employer to engage another person to make the work good, and deduct cost of same from moneys due to the contractor, as the agreement gives the architect sole authority in the matters of material and workmanship, which cannot be referred to arbitration.

5. Write clear descriptive specifications of the following: (a) An ordinary kitchen dresser. (b) A teak door and frame such as



KITCHEN DRESSER.

Question 5.



FIRE-RESISTING DOOR.

Question 5.

would be accepted under the London regulations to cut off a factory fire-escape staircase from a working floor; include all needful ironmongery. (c) A door and all the dressings and fittings thereof in a 14-in. wall between two decorated rooms in a large mansion. Illustrate your answer with sketches.

Answer (see diagrams).—(a) Form dresser in kitchen (say) 8' 0" wide by 7' 6" high as sketch, in wrought deal, all properly framed and joined together and secured to grounds plugged to wall, with 1½" top in white deal, cross-tongued and rounded at edges and corners, 2' 3" wide with 1" × ½" plate bead housed in top and 4" × 1" chamfered skirting tongued in, 3" × 1½" rail under on 3" × 3" legs in front, 3" × 1½" frame at back, and 1" cross-tongued ends.

Three drawers under, 6" deep on faces, with 1" fronts and ¾" back, sides and bottom, with brass pulls, one with brass drawer lock, with 2" × 1½" rail under and oak runners, 1½" grooved and tongued pot-board, with rounded nosing, on three 2½" × 1½" bearers and with 2½" × 1½" riser at front and 6" × 1" chamfered skirting tongued in. Two pairs 1" one panelled cupboard doors hung folding with rebated and beaded meeting stiles, on 2½" brass butts. Doors to have one 4" brass-necked bolt, one small brass cupboard lock, ball catches, and two brass knobs. The pot-board and the bearer under drawers to be rebated out to stop doors. Three 1" shelves, 5", 6", and 7" wide respectively, with plate sinking in top, housed into 8" × 1½" cut and shaped standards, 2" × 1" mould under each shelf and 3 doz. brass cup-hooks. Feet of standards to be housed into the top, ¾" cross-tongued top-board with 2" × 1" mould under, 4" × 1" top fascia flush with fronts of standard, and 3" × 3" mould mitred round top.

(b) To escape staircase fit up a pair of 2" three-panelled teak doors hung folding in 4' 6" clear opening. Lower panels to be bead flush and same thickness, and upper panel prepared with teak (or brass) loose beads with brass cups and screws, for ¼" polished wired glass. Hang to open outwards in 4" × 3" rebated teak frame with brass bushed steel spring hinges. Door to have an approved push panic-bolt inside to open with a key from outside, and brass pull handles.

(c) Door to be 3' 3" × 7' 6" hardwood square framed 6 panel door bolection moulded both sides, having fielded both sides panels, hung to 2" three panel jambs with 1½" one panel head twice rebated linings, tongued at angles and fixed to framed backings, with 6" × 1½" moulded architraves both sides fixed to narrow splayed grounds, mitred at angles and stopped upon moulded plinth-block. Hang with 4½" brass rising butts with double steel joints, and provide and fix mortice lock P.C. 10/6 and furniture P.C. 20/- and four finger plates P.C. 5/- each, all to architect's approval.

6. Specify the whole of the brickwork for a house, including brick mullioned windows, brick angle quoins, and diapered patterns

produced by bricks of differing colour in the wall surfaces.

Answer—Bricks.—All bricks not otherwise specified to be in local stocks from an approved yard, sound and well burnt, and no bats to be used except where necessary for bond.

Brickwork.—Build the walls, etc., as shown on the drawings, in lime mortar and plumbed perpendicular. Each course to be well flushed up and no four courses to measure more than 12" in height. All walls to be carried up together, no part rising more than one scaffold-height above any other part.

Facings to be in hand-made sand stocks to architect's approval, and brindled headers to be picked out and used to make patterns as shown on detail. Finish as work proceeds with a neat weather joint.

Plinth to be built projecting 1" beyond general wall-face and weathered off in cement.

Quoins.—Form quoins by setting out bricks to 1" projection for 3 courses to 1 course not projected. Quoins to show alternately 14½" and 18" on each face. Weather off in cement.

Window Openings to be formed to detail in moulded sand bricks to detail, from the same yard as the facings. Transoms and heads to have one ¾" gas barrel through same, and sills to be set and pointed in cement with two courses roofing tiles under, bedded in cement and projecting 1½".

7. State prices of the following, mentioning the district to which they apply: (a) A rod of stock brickwork in mortar. (b) Milled lead. (c) Best blue Bangor Countess slating, laid to 3-in. lap, and including labour and nails.

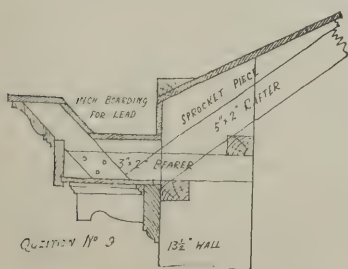
Answer.—London prices: (a) £14 0 0 (b) 25/- per cwt. laid in flats, etc. (c) 44/- per square.

8. Ordinary brick walls in a house are for the purposes of the bill of quantities, reduced to the standard thickness of 1½-in. brick. What exceptions are there to this method of measurement?

Answer.—Walls 4½" thick, and circular work.

9. (See diagram). Specify in full detail the timber construction at the eaves of a roof finished with a wooden cornice overhanging two feet, and having a lead-lined gutter upon it. The lower part of the roof slope for, say, three or four feet is to be flatter than the upper part. The answer is to be illustrated by a clear sketch, but the verbal description must also be clear and full.

Answer.—Build up to eaves where shown wooden cornice as sketch, total projection 2' 0" of the following members. On the common rafters (5"×2") fix sprocket pieces 4' 0" long, two out of 7"×2", covered with 1" sawn boarding and tilting fillet out of rafter. Build in 4"×2" bearers spaced 1½ bricks apart, firmed for cornice. Form falls for gutter



Question 9.

and cover with 1" boarding dressed one side for lead. 9"×1" moulded and grooved fascia, 6"×1" moulded cornice, blocked out, 5"×¾" capping, 10"×¾" soffit board, 5"×1½" moulded wall fascia. Put 5"×4"×9" long moulded consoles under soffit, and 2"×1½" bed mould mitred around same and along wall fascia, all to detail.

ENQUIRIES ANSWERED.

Patent Folding Partitions.

CORRESPONDENTS write: "Kindly supply the name and address of the manufacturers of Wilk's patent folding partitions."

—Wilk's "Climax" patent folding partitions are made by the North of England School Furnishing Co., Ltd., of Darlington. G.

Strength of Rustic Bridge.

CORRESPONDENT writes: "It is proposed to build a rustic bridge to carry pedestrians, and occasional horsemen, when hunting. All timber, except the cross bracing and balustrade, is in best English oak. The cross bracing is in yew 'rustic' work, probably 3 in. by 4 in. branches, carefully selected, and all joints and ends are squared and properly framed, and the foundation is stable. Kindly give an opinion as to its strength."

—Taking it generally, the proposed design is suitable. The joints must be carefully made. There should be four ⅝-in. bolts through each scarf. The lattice bracing should have the larger branches in the end bays. The materials for the concrete should be specified and measured separately, 1 part British Standard Portland cement, 3 parts clean sharp sand, 6 parts graded broken stone. It is wrong to speak of 1:2:4 concrete as 1 to 6, because the cement and sand are absorbed in the voids of the broken stone.

HENRY ADAMS.

"Worms" in Woodwork.

W. W. B. writes: "'Worms' have recently appeared in the doors and architraves of a house erected in this place some twelve years ago. The doors, etc., are of pine, painted. On examination I find that so far but little damage has been done. The affected woodwork is in situations at a considerable distance from each other. I should also like information as to the insect which causes the trouble, and as to whether the worm is the grub resulting from eggs laid in or upon the wood."

—Worm-burrows in woodwork in this country usually result from the larvæ of one of three species of beetle, the commonest and most destructive being *Anobium striatum*, the well-known "death-watch." These insects are produced from eggs deposited in crevices of the woodwork, from which are hatched small, white fleshy grubs, resembling the grubs of the cockchafer in miniature, which generally lie curled upon their sides. The grubs make their burrows generally in the direction of the fibre of the wood, but when it becomes dry and old they burrow in all directions. When full-grown they cease eating, cast off their larva skins, and appear as inactive chrysalids; after a short time the perfect insect bursts forth. This is about ⅓ in. long and of a brown colour, with a row of small dots down the back. Other species less commonly encountered

are *Ptilinus pectinicornis* and *Anobium tessellatum*. The appearance of the perfect insect takes place uniformly during the first hot days of summer. Where they take a liking to a piece of wood they seem to devour every particle of it, their preference appearing to be for old wood, which at the time of its use was unseasoned. Painting is no check to the ravages of the beetle, but rather intensifies the evil by confining the perfect insects to the wood, as the beetle as well as the grub feeds on wood. The English woods most liable to worm are beech, pear, alder, ash, birch, sycamore, and lime. Those usually unaffected are such as contain either essential oils (as cedar and walnut), or acrid juices such as larch, white oak, or plane.

Probably the best remedy which can be applied to woodwork in which ravages have begun, and which cannot be detached for immersion in protective solutions, is to inject into the holes spirits of wine (4 oz.), in which bichloride of mercury, 10 grains (corrosive sublimate) has been dissolved. Benzene is also effective and less dangerous in use. The insects in possession will not survive this treatment, and if corrosive sublimate is used it is unlikely that there will be further attacks. After treatment the holes might be injected with vegetable gum and glycerine to fill up and strengthen the structure, though in the present instance where little damage has yet resulted this is probably unnecessary. A considerable mass of further information as to the treatment of timber for preservation from worms, beetles, etc., is given in "A Treatise on Dry Rot in Timber," by T. A. Britton, published in 1875 by Messrs. E. and F. N. Spon. G.

Preparing Colour Schemes.

NUNTON writes: "What procedure is usually adopted in preparing a colour scheme for the interior of a public building? Ordinary water-colours as used in architects' offices do not have sufficient density to indicate plain wall surfaces. Presumably, elevations of the various walls, arcades, etc., would be required and drawn to scale. Roughly speaking, what would be the cost of preparing a colour scheme for, say, a public hall 70 ft. long by 45 ft. by 40 ft. high in a reasonably plain manner?"

—In order to give density to water-colours employed in preparing colour schemes to scale, Chinese white or zinc oxide is usually employed; some artists prefer white lead, which, however, is not to be recommended. Two or three guineas would be fair payment for the design mentioned. A. S. J.

Washing Soda in Portland Cement.

CORRESPONDENT writes: "What would be the effect on Portland cement of a small percentage of ordinary washing soda, added to get a quick set? If there is nothing deleterious in the addition what would be the greatest proportion that could be safely used?"

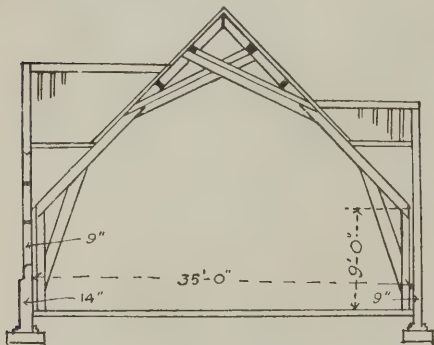
—We have no definite figures showing the effect of a small percentage of washing soda on the final strength of a cement, but we do not consider that it can do any harm, as it would be converted almost instantaneously into calcium carbonate (which is insoluble) and caustic soda (which could do no serious damage). The variation in the percentage of soda in cements is considerable, and, so far as we are aware, no complaints have yet been made of cements

containing as much soda as is equivalent to 10 per cent. of washing soda. Hence, the addition of not more than 3 per cent.—which should be ample for the purpose mentioned in the query—should have no deleterious effect *per se*. One great disadvantage of quick-setting cements is the ease with which it is possible to “work through” the initial set. If this is done the cement is irretrievably weakened. Rotary kiln cements now can be obtained to set so rapidly that it is almost impossible to avoid “working through” the initial set, and our advice to the querist is to avoid all accelerators and to use the slowest setting cement possible. The quicker the setting the weaker is the cement likely to be. A. B. SEARLE.

Roof Truss for Hall.

CORRESPONDENTS write: “We are endeavouring to construct a roof without a tie-beam, rods, columns, or posts, as cheaply as possible. The span, as shown by the accompanying section, is 35 ft. clear, and the room is 73 ft. long, divided into six bays. We should be glad of an opinion with respect to the construction adopted.”

—The type of truss shown is a very



favourite one for appearance, but of the worst form for economy. By calculation the section necessary for the principal rafter at the part where it is single in the centre of the roof slope would be 24 in. by 12 in., which is, of course, out of the question. Also, the apex of the truss is formed by a quadrilateral, whereas it is necessary to triangulate every portion. The purlins must also be over the points where the principal rafters meet with support from the trussing.

HENRY ADAMS.

Composition of Mastic.

P. AND S. write: “Can you supply us with the name of the makers of a powder known as “mastic,” used with linseed oil to form a kind of putty mortar for pointing stonework and brickwork and for pointing round wood frames in buildings?”

—There are various recipes for mastic in existence, many plasterers preferring to mix their own. The material was formerly used for many purposes for which it has been supplanted by Portland cement, its use being now almost confined to pointing up round window frames, and that chiefly in Scotland and the North of England. A recipe for Scotch mastic is: 14 parts of powdered white or yellow sandstone, 3 parts of whiting, 1 part of litharge. Mix on a hot plate to expel moisture, sift, and gauge with linseed oil mixed raw 2 parts boiled 1 part. London mastic is composed of: 100 parts powdered stone, 50 parts silver sand, 15 parts litharge, 15 parts red lead, sometimes added for extra cohesion. Gauge with

raw and boiled oil in equal proportions. The powdered mastic may be obtained ready for use from Alexander McAra, 65, Monson Street, Glasgow, or J. Laycock, Colne, Lancashire. G.

Scaffolding as an “Extra.”

H. C. writes: “I am having a dispute with a building contractor with respect to interior scaffolding. My quantities were couched in the usual terms: ‘Provide all scaffolding, tackle, and plant required for all trades.’ The drawings were inspected by the contractor before the tender was sent in, but he now claims an extra for erecting scaffolding for the plasterers’ use, although the latter trade is included as a sub-contract. Kindly give an opinion on this dispute.”

—The contractor is evidently in the wrong and cannot claim as an “extra” for work which forms so necessary a part of his original contract. Whether or no he has a claim against the sub-contractor depends, of course, upon his own bargain, and has no bearing upon that between himself and the building proprietors.

F. S. D.

Securing Timber Building to Brick Base.

H. B. writes: “Above the concrete foundation of a proposed half-timber building are to be laid a few courses of bricks, upon which the plate of the oak framing is to rest. I should be glad to know the best way to secure the plate. Is it necessary to take the bolts through the brickwork to the concrete? What size would these bolts be and how far apart?”

—It is not unusual for a timber building merely to rest on the base without any holding-down bolt, though where a timber upper storey rests on a brick lower storey they are desirable and $\frac{7}{8}$ -in. bolts 30 in. long, built into the brickwork about 3 ft. apart, screwed at upper ends with their nuts turned down tight on oak plate are quite adequate. This length will not necessitate the bolt penetrating the concrete. G.

Girders for Highway Bridge.

STUDENT writes: “It is proposed to cover over a small stream, about 100 ft. long by 18 ft. wide, so as to increase the width of a main highway. It is desirable that the soffit should be flat and as near as possible to the crown of the highway—say about 18 in. from soffit to top of metalting. Would the following construction be sufficiently strong to bear a moving steam roller weighing fourteen tons? Beams, 10 in. by 10 in. (broad flange), 5 ft. apart, placed transversely (18 ft. clear span), and 6 in. by 6 in. by $\frac{5}{8}$ in. steel \angle placed 2 ft. 6 in. apart longitudinally and resting on the under flanges of the 10 in. by 10-in. beams; the whole space thereafter to be covered with concrete 14 in. thick and with metal bed on top.”

—With girders 5 ft. apart and 18 ft. span the load on each will be about $7\frac{1}{4}$ tons distributed from the structural load, and $10\frac{3}{4}$ tons equivalent distributed load from one side of the road roller, or, say, 18 tons in all, but a 10-in. by 10-in. by 55-lb. broad flange beam will only carry 16 tons on this span with a deflection of 0.58 in., making no allowance for vibration. It will therefore be necessary to put these beams closer together—say 4 ft. apart—or to use the next size, 12 in. by 12 in., by 80 lb., but the 10 in. by 10 in., by 55 lb., placed 4 ft. apart will come cheaper. The tee sections will no doubt be sufficient at 2 ft. 6 in. apart.

HENRY ADAMS.

Mounting Drawings on Strainers.

A READER (Boscombe) writes: “I should be glad to know what kind of linen or canvas is necessary to ensure a good mount on wooden strainers. Hitherto I have mounted all my drawings on straw-board, and with complete success.”

—Either white or brown holland is suitable for mounting drawings on strainers, but the operation of covering the strainers is one requiring a considerable amount of experience, and usually the amateur's efforts are not very successful. E. G.

Books on Surveying.

F. J. F. writes: “Kindly recommend a good book on surveying.”

—Probably the most suitable book would be Middleton's “Surveying and Surveying Instruments” (Whittaker and Co.). Alternatives would be Walmisley's “Land Surveying and Levelling,” or Usill's “Practical Surveying” (Crosby Lockwood and Son). For very advanced work it would be necessary to have Whitelaw's “Surveying as Practised by Civil Engineers and Surveyors” (Crosby Lockwood and Son). M.

Makers of Septic Sewage Plant.

F. H. G. (Cardiff) writes: “Kindly give me the address of Messrs. Tuke and Bell, makers of semi-septic sewage plant. I should be further obliged if you would favour me with the names and addresses of several other firms who make a sewage disposal (septic) suitable for a small country house.”

—The address of Messrs. Tuke and Bell, Ltd., is 69, Leadenhall Street, E.C. Their system has a very successful record. Other firms making suitable plants are: Messrs. Burch, Killon, and Co., Cooper Street, Manchester, makers of the Fiddian distributor and filter; Messrs. The Septic Tank Co., Ltd., 5, Victoria Street, Westminster; Messrs. Adamsez, Ltd., 5 and 7, Old Queen Street, Westminster; Messrs. Burn Brothers, 3, Blackfriars Road, London, S.E. G.

Why is a Hammerbeam Roof So Called?

GOTH writes: “I have just had a query propounded to me by one of the babes and sucklings of the profession that I, an old Gothicism, am at a loss to answer. It is, ‘Why is a hammerbeam roof so called?’ He is well acquainted with the construction and detail of these roofs, but wishing to get to the root of things, he wants to know why and wherefore the term ‘hammer’ is used in connection with this type of roof.”

—In the Dictionary of Architecture issued by the Architectural Publication Society the suggestion is made that the term is possibly derived from the French heraldic term *hamade*, signifying three pieces framed or riveted together in a triangular form—this would actually be what is called the “hammerbeam truss,” formed by the wall-piece, the curved brace, and the hammerbeam itself. The derivation and origin of the term are, however, very doubtful, but it does not appear to be ancient, the earliest use which has been traced being by Nicholson in his Dictionary (1819); then in Stuart (1831) and Britton (1838). In early descriptions the straight piece is called “beam” or “girder.” Viollet-le-Duc does not use a corresponding French term for the hammerbeam. It has also been suggested quite simply that the name comes from its resemblance to the head of a hammer, the wall piece representing the handle.

G.

MOTOR NOTES FOR BUILDERS AND CONTRACTORS.

[Specially Contributed.]

The Ethics of Buying.

IS there any reason why the purchaser of a motor truck should expect free repair service, and is there any reason why motor truck manufacturers should give it?

When you purchase a suit of clothes you do not expect that the tailor will press them without cost, repair rents free of charge, and sew on buttons for nothing. When you purchase a watch you do not get free cleaning at the end of six months simply because you persist in opening the case every day, and let dust find its way into the works; nor do you get a new main-spring free of cost because of your folly in dropping the timepiece on the floor. Then why, when you buy a motor truck, should you expect free repair parts and demand a guarantee covering such, when without doubt more than two-thirds of the expense connected with such truck is due to the ignorance of the operator and the owner?

That owner who demands such gratuitous service from the truck manufacturer is asking for a service that he cannot secure in other lines of business. That owner could not conduct his own business if he were endeavouring to operate along the same line and extend the same form of blanket guarantee to his purchasing clientèle. By such actions the truck-makers are putting themselves in a bad hole, and the truck-buyers are expecting to get bread from a stone.

Short-sighted Price-cutting.

It is impossible for any motor truck manufacturer to continue in business unless he reaps a legitimate profit from his efforts. It is impossible for any motor truck dealer to continue in business unless he, too, makes a legitimate profit from his sales; then why should a buyer be so short-sighted as to expect the dealer to cut the price—in a word, give his commission to the buyer and, in addition, give free repairs and continue in business. It is impossible. It is unbusinesslike, and that buyer who expects and solicits such transactions is bound, sooner or later, to pay the bill. He cannot expect such a dealer to continue in business; he cannot expect such a dealer to give him rational assistance or advice in the care or operation of his truck, and he certainly cannot look for much co-operation after he has purchased his machine.

The wise buyer looks through a different pair of spectacles. He is a business man himself. He knows he cannot give away his profit to the buyer and still make money. That is one of the impossibilities of business life that he learned years ago. He knows that a business cannot be conducted without a rational profit, and he prefers to buy his trucks from a maker or a dealer who insists on his profit and, because of receiving this profit, is in a position to continue in business and give service of a rational nature during the life of a truck.

Rational Guarantees.

Truck manufacturers do not object to a rational guarantee covering defective materials and defective workmanship, but so many buyers want unreasonable guarantees. It is only the manufacturer of an inferior product who

wishes to use his guarantee as a selling argument that seeks such protection under such a cloak. The maker who has a truck well made, and one that will stand up, can afford to stand pat on his price and refuse to do free repair work, because by such action he will undoubtedly get the recommendation of the owner. For a time this condition makes a hardship to those concerned putting the best possible by way of design, material, and workmanship in their vehicles, but in the long run it will win out, and they will become the concerns which will reap the benefit from repeat order business. Buyers should be more concerned with buying trucks of merit than purchasing guarantees. The buyer who uses every effort to get the lowest price by taking a part of the dealer's commission is certain to have to pay for his whistle before the truck is through with its service to him.

Strength Essential.

It is an admitted fact that a commercial vehicle, to be of any use to the builder and contractor, must be able to stand up to the hardest of work. It is essential that the chassis be strong and the motive power reliable, for a great deal of the day's work is done on roads which are as yet unmade and into which the wheels of any type of vehicle sink deeply. When this is the case the chassis' frame is subjected to many strains which in the ordinary way would not be encountered. Great strength is therefore essential both in the framework and in the axles and wheels. Also, there is another important matter to be considered, and that is the one of sufficient ground clearance. Where bad roads are encountered into which the wheels sink, it is quite an easy matter for a careless driver to foul the undershield of the motor—or even, if the wheels sink deeply, to do more than that, and foul the engine fly-wheel, the result being a bent crank-shaft, possibly a broken crank-case, and the truck put out of commission for some

considerable time, not to say anything of the repair expenses. I strongly advise builders, when thinking of purchasing a truck, to make a point of this matter of clearance. In many cases—I think in the majority of cases—the manufacturer also markets a colonial model which has a much greater clearance than the standard truck, and is also of stronger build in many other ways.

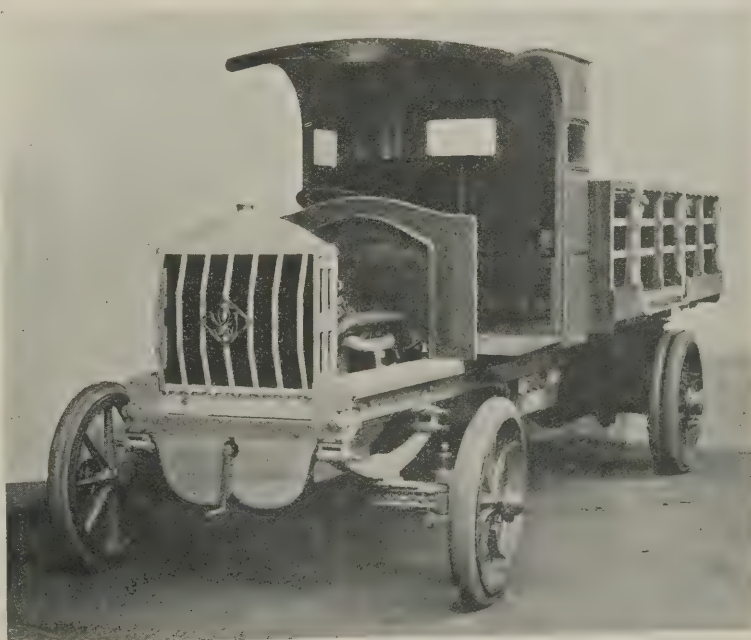
The Laycock-Goodchild four-tonner is a very good example of a truck suitable for the hard work entailed by the transport of materials over bad roads. This chassis is the outcome of years of practical experience in the construction of commercial motor vehicles. Messrs. Laycock-Goodchild's engineers' shops are one of the oldest and best equipped in the British Isles, and those responsible for the design are well versed in the practical as well as the theoretical side of the business.

Some of the most successful present-day chassis owe their design to the same experience responsible for the Laycock-Goodchild. For the information of my readers, I give a detailed specification of the Laycock-Goodchild chassis, which will show that care and attention to detail, as well as good design, has not been overlooked. For the builder and contractor it is an essentially suitable vehicle, and any type of body can be fitted.

Specification of the Laycock-Goodchild Chassis.

The frame is of steel. The various parts of the frame are hot-riveted together and the rivet holes are drilled. Gusset plates are fitted to all angles.

The engines are four-cylinder and develop over their power at 1,000 revolutions per minute. The cylinders are cast in pairs; the valves are enclosed and all arranged on one side, are of large area, with long bearing surfaces. The crank chamber is exceptionally strong and has the crank shaft bearings so arranged that the bottom of the crank case can be taken



MOTOR TRUCK SUITABLE FOR TRANSPORT OF MATERIALS
OVER BAD ROADS.

off for inspection of the big ends without disturbing the crankshaft.

Cam Shaft Gear Wheels Lubrication.—The cam shaft is driven by silent chains with machine-cut wheels running in oil-tight casing.

By a gear wheel pump worked from the cam shaft and fitted with a strainer. The whole can be removed for examination without disturbing any part of the engine.

The crank shaft and main bearings are lubricated from this pump through holes drilled in the shaft. The top end of connecting rod and pistons is lubricated by splash.

Cooling Radiator by Pump.—L.G.O. type, copper tubes, detachable top and bottom of approved design, and stronger construction with larger head of water, fitted with spring suspension to minimise shock. The cooling is assisted by a fan driven by broad leather belt from extension of cam shaft with suitable adjustment.

Ignition.—Two distinct and separate forms of ignition are fitted:

(a) A high-tension magneto.

(b) Accumulator ignition by synchronised coil variable timing by lever on dash, cables carried in insulated tubes.

Carburettor Control.—The carburettor is of special automatic type.

The engine is controlled by accelerator pedal working in sympathy with the hand lever fitted on steering wheel.

Clutch.—The clutch is of cone type with special lining, and is of large diameter and breadth of face, and is fitted with a large area clutch brake for ease in changing speed. The clutch can easily be removed without disturbing the engine or gear-box. Universal joints are fitted between clutch and gear-box.

Gear-box.—This is on the constant-on mesh type, three and four speeds forward and reverse. The shafts can be easily removed. The speeds are selected through a gate fitted with a simple reverse locking device.

Transmission.—The transmission from the gear-box to the back axle is by means of a cardan shaft universally jointed.

Back Axle.—The back axle is worm-driven. The shafts are of the full floating type, all weight being carried on to the axle casing.

Front Axle.—The front axle is of Butler's patent type, which is light, strong, and reliable.

Brakes.—Immediately at rear of gear-box a large locomotive type brake is fitted, also two independent brakes are mounted upon each rear wheel. These are side by side and of large area.

Road Wheels.—The road wheels are of cast steel carried on plain bearings with floating bushes.

Springs.—The springs are of the finest oil tempered spring steel, long and flexible. The eyes are solid and are bushed with phosphor bronze.

Steering.—The steering is of the irreversible type, and of ample strength, with worm and segment enclosed in oil-tight casing.

Mud Shield.—An apron of sheet-iron heavily coated with lead is fitted so that it protects the engine, clutch, etc., from mud and dust. It is easily detached by hand and is rattle-proof.

Tyres.—Solid rubber tyres are fitted on all wheels, twin tyres on the rear and single on the front.

Outfit.—A set of tools, oilcan, petrol and water filler and a few small springs and joints are supplied with each chassis.

NEWS ITEMS.

Proposed Industrial Hall, Glasgow.

A company has been formed for promoting the erection of a large industrial hall for commercial exhibitions on a site in Bothwell Street, Glasgow. Mr. James Miller is, we believe, the architect of the projected building.

Arcade, Cardiff.

Extensive alterations are about to be made to the Queen Street Arcade, Cardiff, at a cost of £3,500. The elevations are to be refronted in white marble. Mr. W. R. Jackson, of Cardiff, is the architect, and Messrs. E. R. Evans and Brothers, also of Cardiff, are the contractors.

Strengthening a Bridge.

It has been decided to strengthen the foundations of the piers of the old Val Benoit bridge at Liège, over which the international trains from Paris to Cologne cross the Meuse, by injecting cement under pressure into the underlying gravel of the river, so as to form a large monolithic mass at the foot of each pier.

Housing Scheme at Hartlepool.

The Corporation of Hartlepool has in contemplation a housing scheme which is estimated to cost about £40,000. There exists in the middle of the town a slum area between four and five acres in extent. This it is proposed to clear completely and to lay out and build streets of modern dwellings. The plans provide for the erection of about seventy houses of various sizes.

County Sanatoria for Tuberculosis.

The Kent County Council have decided to build a central sanatorium for Kent for the treatment of tuberculosis. Provision will be made for 100 beds, and the capital expenditure will amount to £6,000.

The Cornwall County Council have decided to apply to the Local Government Board for power to borrow £3,000 for the purpose of providing a sanatorium for tuberculosis patients under the National Insurance Act. It is proposed to adapt the Watergate Hotel, Newquay, to this purpose. The total cost is estimated at £7,500.

Proposed Thames-side Boulevard.

A scheme to enhance the amenities of the River Thames has been brought before the Urban District Council of East and West Molesey. The proposal involves the construction of a riverside boulevard, extending a distance of about half a mile, from Molesey Lock to the boundary of the parish at Hampton. It is proposed to acquire a strip of land varying in width from 30 ft. to 64 ft. adjacent to the towing-path and commanding a view of one of the most picturesque reaches of the Thames.

Town-planning at Halifax and Leeds.

Halifax Corporation have secured the sanction of the L.G.B. to draw up town-planning schemes for three separate areas aggregating 2,291 acres, or more than a seventh of the whole borough.

The Local Government Board have given authority for the preparation of two further town planning schemes under the Housing, Town Planning, etc., Act, 1909. The schemes are authorised to be prepared by the Urban District Council of Hazel Grove and Bramhall and the rural district of Hunslet. In the case of Hazel Grove and Bramhall the scheme is to apply to an area of about 1,728 acres in the urban district,

and in the case of Hunslet to an area of about 470 acres, partly within the rural district and partly within the city of Leeds.

Burbage Memorial in Shoreditch.

The memorial tablet to James Burbage (builder of the first English playhouse) and a number of other Elizabethan actors, which has been subscribed for by members of the London Shakespeare League and their friends, is to be placed in position on the north wall of the north aisle in St. Leonard's Church, Shoreditch, early in the autumn. The design, by Mr. William H. Ansell, A.R.I.B.A., consists of a tablet in white marble with incised inscription surrounded by a green marble moulding in the style of the English Renaissance as interpreted by Dance, the pupil of Sir Christopher Wren, who designed the church. The sole ornament is a laurel wreath in the centre of the upper part, and the tablet is 8 ft. 6 in. high.

Dublin and the Choice of an Architect.

It is stated that Sir Hugh Lane's offer of modern pictures to the City of Dublin is likely to be withdrawn. The Lord Mayor of Dublin is reported as having said that Sir Hugh had insisted that unless Mr. Lutyns were appointed for the erection of the gallery the pictures would be removed. To this condition the Corporation decisively declines to agree, and the Lord Mayor thinks that it would be useless to call any more meetings of the Corporation to discuss the matter any further. The Corporation had promised to contribute £22,000 for the gallery, and had agreed to a bridge site, but insisted on having an architect of its own choice.

Building Developments at Knightsbridge.

Messrs. Harrods, Ltd., have acquired an eighty years' lease of about two acres at Knightsbridge, upon which they will erect immediately buildings which are estimated to cost £150,000. Mr. James Carmichael is the contractor, while Messrs. J. Mowlem and Co., Ltd., are constructing a subway to connect the new buildings with Messrs. Harrods existing premises.

Plans for the development of the remaining portion of the Trevor estate, as it was formerly called, are well advanced, and with the changes at Hyde Park Corner consequent on the demolition of St. George's Hospital and the alterations to Lowther Lodge for the Royal Geographical Society, this part of London is destined to see great changes in the immediate future.

Quarries Act Statistics.

The first part of the general report on the mines and quarries of this country for 1912 states that at the quarries under the Quarries Act 79,887 persons were employed, of whom 51,055 worked inside the actual pits or excavations, and 28,832 outside. Compared with 1911 there is a decrease of 998 in the number of the inside workers, and of 1,978 in the number of the outside workers, making a total decrease of 2,976 in the number of persons employed at quarries. The persons employed occasionally at quarries are not included in these figures. The total quantity of stone and other minerals obtained from the quarries under the Quarries Act was 43,158,035 tons, of which 4,916,972 tons were iron ore. If to the produce of mines and of quarries over 20 ft. deep are added 453,293 tons obtained from shallow open workings, the total output of iron ore was 13,790,391 tons.

New York's Lady Architect.

Miss Fay Kellogg is New York's first successful woman architect, and this fact has no doubt helped her considerably in her

career. The Americans, on the whole, are extremely fond of anything novel, and the novelty of having one's house designed by a woman architect has appealed to many influential Americans, Miss Kellogg finding plenty to do in her profession. She studied her profession in Paris and New York, and can not only design a house, but is a capable carpenter and steam-fitter. She knows how to do, and has done, the whole work of building a house. Miss Kellogg's chief interest in her work is in the designing of really comfortable houses for women to live in, in which she embodies many comforts that women appreciate and that would not occur to the mind of the average architect of the stronger sex. In this work alone it is said that she earns \$8,000 per year.

Moving a Building Bodily.

In a district accustomed to subsidences due to brine pumping, necessitating the erection of frame buildings and curious methods of lifting, possibly the most novel form of moving a building is at present being tried at the premises formerly licensed as the Bridge Inn, London Road, Northwich. A comparatively modern building, it has been lifted several times, but the ground proved so insecure that the licence was eventually abandoned. The building, which contains eight rooms and weighs sixty tons, has been purchased by a local ship-builder, who is trying an experiment on ship-launching lines. The building, which is securely held together by middle plates and ropes, was lifted up 4 ft. and pushed back with big beams a distance of 35 ft. It now stands on grooved timber baulks, which are thickly greased, and with the aid of chains attached to windlasses is being bodily transferred across an open yard, a distance of thirty yards, to what is regarded as more stable ground.

The King's Dock at Singapore.

The new dock which has just been completed at Singapore is the largest dry dock in the Far East. Its length from the outer stop to the head is 892 ft. 6 in., and from the inner stop to the head 876 ft.; the width at the entrance 100 ft., and inside the dock between the copings 128 ft.; and the depth on the outer sill 34 ft. at h.w.o.s.t., and 24 ft. at extreme low water. By means of a central caisson the dock can be divided into an inner and an outer portion, 502 ft. and 346 ft. long respectively. With the exception of the entrances, which are of Cornish granite ashlar, the dock is constructed entirely of concrete. The altars consist of moulded concrete blocks, and the remainder of the face is of fine concrete mass-work. Three rows of granite keel block courses run the length of the dock under a corresponding number of heavy timber keel blocks, the remainder of the floor being of mass concrete. The engineers for the works, which were carried on under contract by Messrs. Topham, Jones, and Raiton, of Westminster, are Messrs. Coode, Matthews, Fitzmaurice, and Wilson, and Mr. J. R. Nicholson, Mr. F. C. Fforde acted as resident engineer. The cost has been over £400,000.

L.C.C. Regulations as to Lighting, Heating, and Ventilation.

On February 22nd, 1910, the London County Council made regulations relative to applications to the Council under Part III. of the London County Council (General Powers) Act, 1908. Regulation No. 3 provides that particulars of the methods of heating,

lighting, and ventilation proposed to be adopted at the premises in respect of which the application is made shall be submitted by the applicant. The regulation as worded does not make clear the intention that the systems of lighting, heating, and ventilation proposed to be provided should be to the satisfaction of the Council, nor does it include a provision with regard to the installation of electrical power systems. The Building Acts Committee of the Council are of opinion that the regulations should be varied so as to meet these points, and the Fire Brigade Committee, whom they have consulted, concur in this view. They recommend: "That No. 3 of the regulations with regard to applications to the Council under Part III. of the London County Council (General Powers) Act, 1908, made by the Council on February 22nd, 1910, be amended to read as follows, and, as thus amended, be approved. (2) That no heating, lighting, electrical or ventilating arrangements be installed unless and until a detailed specification of the proposals has been submitted to and approved by the Council, or except in accordance with the approved specification."

New Lighthouse at Cape Wrath.

A new lighthouse which is to be erected at Cape Wrath will be situated on a reef, or "stack," which runs out into the North Atlantic to a distance of about 1,500 ft. from the present light. The reef runs out continuously from below the present lighthouse, and it terminates on a "stack" which rises to a height of 206 ft. above high-water mark. The lighthouse, which will be 40 ft. in height, will be built on this "stack." The lighthouse men, who will continue to reside in the present buildings, will go to and come from their post through a covered way running from the top of the cliff along the reef to the light; and in order to construct this covered way it will be necessary to sink in the rock a shaft 9 ft. in diameter to a depth of 180 ft. A heading of the same diameter will then be driven through the rock for about 60 ft., terminating at the face of the cliffs, and from this point a covered way of reinforced concrete and brickwork will be formed on the top of the reef. The covered way will span two gullies, 80 ft. and 100 ft. wide respectively, and will terminate at the lighthouse. The length will be 1,500 ft. Steel girders will be used in order to bridge the gullies, but all the steel work will be enclosed in concrete in order to prevent corrosion. The designs for the work have been prepared by Messrs. D. and C. Stevenson, of Edinburgh.

A Committee of Inquiry on Malingering.

A Special Committee has been appointed to inquire into the allegations of excessive sickness claims and malingering among insured persons. Sir Claud Schuster, the legal member of the English Insurance Commission, is chairman, and among other members are Miss Mona Wilson, Miss Mary Macarthur, secretary of the Women's Trade Union League; Mr. W. P. Wright, Grand Master of the Manchester Unity; Mr. A. H. Warren, president of the National Conference of Friendly Societies; Mr. Walter Davies, Sons of Temperance Society; the Chairman of the Manchester Insurance Committee, and three representatives of the medical profession. The terms of reference are: "To inquire into and report upon the alleged excessive claims upon and allowances by approved societies in England in respect of sickness benefit and

any special circumstances which may cause any such claims or allowances." The investigation is limited to England. A full inquiry will be made into the allegations of malingering, particularly among women, and into the assertions that panel doctors have granted medical certificates to insured persons without proper examination and for trivial ailments. The secretary of the committee is Mr. A. Gray, Insurance Commission, Buckingham Gate, to whom all correspondence should be addressed.

LONDON EDWARD VII. MEMORIALS.

The purchase of the Shadwell Market from the Corporation by the King Edward Memorial Committee having been completed, various plans for the laying out of the site as a garden, park, and playground are under consideration. It will be necessary to build a wall or embankment on the foreshore of the river, and Mr. F. Palmer, C.I.E., consulting engineer to the Port of London Authority, and a member of the firm of which Sir Alexander Rendel is the head, has agreed to prepare plans and estimates of the cost. Directly the plans are ready a meeting of the Advisory Committee of the King Edward Memorial Fund will be held at the Mansion House. Application has been made to the Port of London Authority for permission to extend the river wall or embankment so as to include in the park a portion of the foreshore which is now a mud reach when the tide is out; and the Authority have provisionally expressed their disposition to sanction the scheme. If money is available for the purpose, after the laying out of the grounds, it is intended also to erect in the park some form of memorial monument.

The West-End memorial, it will be remembered, is to consist of a bronze equestrian statue with a granite pedestal in the space at Waterloo Place between the Athenæum Club and the United Service Club. Mr. Bertram Mackennal, A.R.A., is now engaged in preparing the model.

PRICING BUILDERS' QUANTITIES.

Builders steadfastly maintain, against all comers, their unenviable position at the head of the periodically published lists of financial failures, and there can be no doubt that most of this misfortune is due to bad business methods. In particular, it is notorious that the industry suffers very seriously—not simply in specific instances, but as a whole—from the effects of reckless tendering. If builders really knew how to charge for the work for which they give estimates, variations from 20 to 30 per cent. in six or eight tenders would be quite exceptional, whereas they are now quite common. Mr. George Stephenson, the author of "Estimating," of which the seventh edition is now before us, states that where builders have taken out their own quantities in competition, the variation is sometimes simply enormous, often extending to one hundred per cent. Thereupon, the lowest tender being accepted, the plain inferences are either that the higher tenders were utterly erroneous, or that the lowest would involve its author in serious loss, and that either extreme of error is due to ignorance of the governing data. In these circumstances Mr. Stephenson's

manual is eminently helpful. In planning it, he has adopted the very practical course of estimating from the bills of quantities supplied by a London surveyor for a villa at Hampstead. This restriction is not without its disadvantages, which, however, are quite counterbalanced by the simple, orderly, and direct survey which it enables, and by the readiness with which this method lends itself to the illustration of both principles and practice. It cannot be said of this book, as it could certainly be said of more diffuse treatises, that it contains a single superfluous item, whereas a book devised upon a more comprehensive method is certain to grow bulky with a good deal of information in excess of common requirements. Every detail dealt

with by Mr. Stephenson is within the range of everyday experience, and the whole process of estimating is described, and illustrated by examples, with admirable clearness and conciseness.

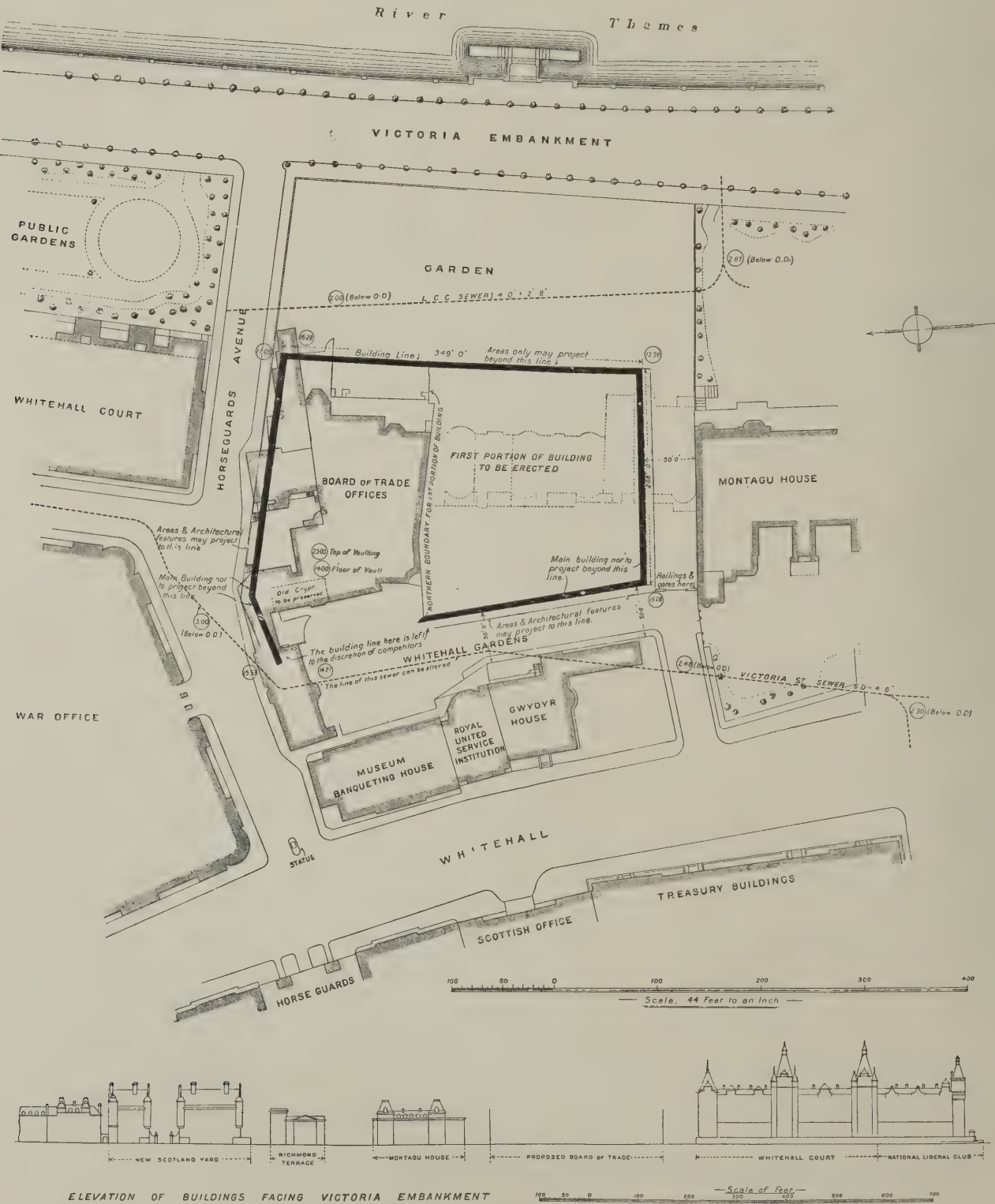
"Estimating: A Method of Pricing Builders' Quantities for Competitive Work." By George Stephenson. Seventh edition, carefully revised. Pages x. + 168, 5 ins. by 7½ ins. price 4s. 6d. net. London: B. T. Batsford, 94, High Holborn.

COMPETITIONS.

New Offices for the Board of Trade, etc.

It is proposed by the Commissioners of His Majesty's Works and Public Buildings to erect new offices for the Board of

Trade, etc., in Whitehall Gardens, S.W., on the site shown by the accompanying plan. There will be two competitions, the first, open to all British subjects, to consist of sketch designs, and the second or final one to be conducted as described later. The assessors, Mr. Reginald T. Blomfield, A.R.A., P.R.I.B.A., Mr. John Belcher, R.A., and Sir Aston Webb, C.V.O., C.B., R.A., will select ten designs or fewer, the authors of which will be invited to compete in the final competition. For the second competition supplementary conditions will be issued. Four months will be allowed, and the selected competitors will be required to send in plans, elevations, sections, etc., of a more complete and detailed character. They shall be at liberty



NEW OFFICES FOR THE BOARD OF TRADE: SITE PLAN.

to make such reasonable modifications of the sketch designs as they may think expedient. Each selected competitor will be paid the sum of £300 provided he complies with all the conditions prescribed for the second competition. Any questions relating to the first competition, as to instructions and conditions, the schedule of accommodation, or the competition generally, are to be addressed to the Secretary to the Commissioners, H.M. Office of Works, Westminster, S.W., not later than Sept. 27th, 1913, after which date no further questions can be answered.

Designs must be sent addressed to the assessors and delivered at the Imperial College of Science and Technology (Mining Buildings), South Kensington, London, S.W., on Dec. 20th, 1913, or on one of the three days next following.

The building is to be fire-resisting, and special attention is to be given to lighting, natural ventilation, and general sanitary arrangements. Methods of construction are to be employed by which it will be practicable to place or remove partitions in almost any part of the floors. Superloads of 1 cwt. per foot should be provided for in the sub-ground and basement floors and of $\frac{3}{4}$ cwt. elsewhere. There should be sufficient staircase accommodation. Suitable lavatory and cloak-room accommodation is to be provided on each floor, and accommodation for cleaners with sink therein, and hot and cold water supplies to both basins and sink. Lifts are to be enclosed in brick or other approved shafts, and there should be three passenger lifts and one goods lift in each of the two portions. Heating should be by hot water radiators, but the rooms for the principal officers, and small rooms with space for five persons or less, are to have fireplaces. Steam will be brought to the centre of the Whitehall Gardens front. The buildings are to be electrically lighted. A refreshment department is to be provided on the top floor, suitable equipped with all requisite cooking apparatus, etc.

The arrangement of floors, offices, and areas given in the schedule which is attached to these conditions and which applies to the first part only, is to be regarded as approximate. The several divisions of the department are to be shown by the tints and the rooms by the numbers indicated in the schedule, and competitors should state in a memorandum what changes, if any, are made from the schedule.

The building will be erected in two portions at such times and intervals as may be determined by Parliament. The Commissioners are advised that a building suitable to their requirements should be obtained at a cost not exceeding £280,000 for the first portion and £290,000 for the second portion. The corresponding net floor areas, exclusive of basement, staircases, corridors, sanitary accommodation, etc., should be about 175,000 ft. and 185,000 ft. respectively.

The average height of the storeys should be about 13 ft. floor to floor, but the principal floor may be slightly higher at the discretion of the competitors, and the total height of the building measured from the pavement in Horse Guards Avenue to the top of the parapet should not exceed 100 ft. and to the ridge 125 ft. The ground floor level to be 21 ft. above datum, and a lower ground floor and basement should be provided. For the external elevations columnar treatment is to be avoided except in isolated features.

Each design is to be accompanied by a descriptive report of the general scheme, materials, warming, ventilation, and light-

ing, together with an estimate of the cost of the design accompanied by the cubic dimensions on which it is based, such cube to be taken from 5 ft. below the basement floor and to include the exact contents of the roof.

The object of the first competition being to obtain a good general scheme, only so much as is necessary to illustrate it need be given on the plans and in the report, as it is desired so far as possible to save labour at this stage. The architect selected by the assessors and approved by the Commissioners in the second competition shall, if requested, revise the design submitted by him, and shall make such further drawings and sketches as may be necessary to meet the requirements of the Commissioners. If no instructions are given to the architect to proceed with the building within twelve months from the date of the assessors' award in the second competition, then the architect shall receive payment from the Commissioners for his services in connection with the preparation of the competition drawings of a sum of £5,000, which shall be inclusive of the sum of £300 payable to him as a selected competitor under clause 6 of these conditions. If the work is subsequently proceeded with, such amount shall form part of his ultimate commission or remuneration.

In the event of the architect being instructed to proceed with the second part a similar payment of fees to be made, but the payment of £1,000 is to be taken as the payment on appointment. Except in the case of alterations and additions exceeding £500 in cost in each instance made by the previous instructions in writing of the Commissioners, the architect shall not be entitled to any remuneration for his services beyond the sums stated. Any such remuneration to which the architect may be entitled shall be at the rate of 5 per cent. on the net cost or as may be agreed upon.

Accommodation to be Provided in First Portion of Building.

SUMMARY.

Note.—Department A should be near the conference rooms on the principal floor and the library should be within easy access of the principal floor, which may be either the first or second floor at the discretion of the competitors. If the second floor is decided upon, then the departments specified for that floor should be placed on the first floor.

Principal floor: Rooms for ministers, high officials, and conference rooms, 8,700 sq. ft.; department A, 2,510 sq. ft.; department B, 3,950 sq. ft. Sub-ground floor: Department C, 14,100 sq. ft.; telephone switch room, strong room, and residential rooms, 1,920 sq. ft. Ground floor: Library, 5,500 sq. ft.; department D, 5,800 sq. ft.; department E, 3,960 sq. ft.; hall porter, etc., 550 sq. ft. Second floor: Department F (1), 5,850 sq. ft.; department G (1), 5,980 sq. ft.; department G (2), 5,540 sq. ft. Third floor: Department F (2), 1,350 sq. ft.; department H (1), 6,000 sq. ft.; department H (2), 6,480 sq. ft.; department I, 3,430 sq. ft. Fourth floor: Department J, 7,780 sq. ft.; department K (1), 9,720 sq. ft. Fifth floor: Department K (1), 1,000 sq. ft.; department K (2), 15,050 sq. ft.; department K (3), 1,500 sq. ft. Sixth floor: Department K (3), 17,500 sq. ft. Seventh floor: Department K (3), 15,500 sq. ft. Eighth floor: Department K (3), 3,460 sq. ft.; refreshments, etc., 10,000 sq. ft. General: Waiting rooms on each floor, 4,500 sq. ft.; messengers on each floor, 2,350 sq. ft.; spare, 5,020 sq. ft. Total (exclusive of basement, corridors, staircases, and lavatories), 175,000 sq. ft.

THE HAGUE PALACE OF PEACE.

On Thursday last, August 28th, the Palace of Peace at The Hague was inaugurated in the presence of a brilliant assembly which included Queen Wilhelmina, the Queen Mother, and Prince Henry of the Netherlands. Mr. and Mrs. Carnegie were presented to the Queen, and M. van Karnebeck, president of the Carnegie Foundation, formally "handed over" the palace to the Administrative Council of the Arbitration Court.

The building, which was illustrated and criticised in our issue of August 6th, is rectangular in shape, about 86 yards by 85, and has been erected around an inner courtyard or garden. Constructed of red brick and sandstone, the walls are crowned by a steep grey-blue slate roof, relieved by a double row of small dormer windows. The architect, M. L.-M. Cordonnier, of Lille, was awarded the first prize in the competition arranged by the Carnegie Foundation, but his first design was far too costly, and was modified in co-operation with a Dutch architect, M. van der Steur, the four great towers at first proposed being reduced to one placed over the smaller of the two court rooms, and a smaller one behind the larger court room. These courts, with their appropriate adjuncts, the offices of the Carnegie Foundation, and of the administration of the Arbitration Court, occupy three sides of the building, the Library, which was all Mr. Carnegie at first had in his mind, occupying the fourth. The domed, marble-pillared entrance hall, lighted by stained glass windows, the gift of Holland, leads to a grand double staircase. On the centre window is portrayed the sun, its yellow beams being prolonged on the other windows in an original and effective fashion. The fine marble columns were presented by Italy. Of the two halls for the sittings of Arbitration Tribunals, the larger is about 74 ft. by 41 ft. and rises to the full height of the building. The lower part of the walls is panelled in oak, while the upper part is adorned with symbolical paintings. On one side of the dais is a nude statue of Truth with her mirror, and on the other a draped figure of Justice. The only definite symbol of the Christian religion appears to be the bronze statue of Christ presented by the Argentine Republic, which stands on the main staircase.

THE LONDON LABOUR TROUBLES: DIARY OF A STRENUOUS WEEK.

Last week we recorded the settlement of the strike of labourers engaged on the new hotel which is being erected near Piccadilly Circus. Work was resumed on the announcement that such of the men to whom objection had been raised as remained on the job had consented to become unionists.

Monday, August 25th.

At the same time we commented upon the strike of the London painters, who kept away from work on Monday, August 25th, in consequence of the refusal of the employers to concede their demand for an increase of three-halfpence an hour, the adoption of the code of working rules which they put forward, and the recognition of their union.

On the same evening a meeting of electrical fitters employed permanently by the Office of Works pledged themselves "not to return to work for His Majesty's Office of Works until every blackleg is removed," the reference being to the employment of

some non-unionist painters to take the place of the strikers at the Admiralty. This new strike, which involves about 700 men, affects all the Government Departments, including the Post Office.

No change was reported with respect to the strike of painters, the men holding meetings and pledging themselves to continue the struggle. It is stated that 10,000 men are affected. Fears of a general stoppage of building operations, affecting 150,000 or 200,000 men, appear to be groundless. The painters demand a minimum wage of 9½d. an hour, but the employers retort that, while one man may be worth a shilling an hour, another may be dear at sixpence-halfpenny.

Tuesday, August 26th.

The stokers employed by the Office of Works at the pumps in St. James's Park left work in sympathy with the electricians, who, as recorded above, struck on Monday in sympathy with the painters.

On Tuesday afternoon, August 26th, the London Master Builders' Association and the London Master Decorators' Association met to discuss the position; and in the evening of the same day the latter body met a deputation from the men's union. Afterwards the men's strike committee stated that the employers' offers had been rejected, but that eighteen firms had conceded the demands, and the men concerned would resume work on Wednesday morning. At their Tuesday evening meeting, the London Master Decorators' Association passed the following resolution as a further concession and an amendment to the other previously made: "That the rate of pay be increased by 1d. per hour on the standard rate of wages of 8½d. per hour, the said increase to be made in two equal instalments on September 1, 1913, and January 1, 1914, respectively, thus increasing the present rate of pay to 9d. and 9½d. on those respective dates; that the members of the London Master Decorators' Association will, on the recommendation of any employer, give an additional ½d. on the above increased rates on and after September 1, 1913, to all decorators who apply for and obtain from the said association a certificate to the effect that they are skilled decorators."

Decorating work at the Admiralty, the War Office, the Prime Minister's residence, and other Government buildings was reported as at a standstill during Tuesday. The work of restoring the front of Buckingham Palace has not been delayed, but this step was contemplated at one time during the day. That the proposal was not carried into effect was probably due to the fact that the London Building Industries Federation has not yet come to a decision as to a general strike. It is understood that the work at the Palace has not made sufficient progress to enable the painters to begin work on the building.

The strike of the men engaged by the Office of Works on Monday was precipitated by the employment of non-union painters. The refusal of the authorities to dismiss these men led to an extension of the strike on Tuesday. When it became known that the Office of Works would not agree to discharge the non-union painters the organisers of the electricians immediately arranged to post pickets at all Government buildings at which men were at work under the Office of Works.

Wednesday, August 27th.

To-day there was no material change in the position, but negotiations between the employers and the painters were still proceeding. At dinner time 200 men em-

ployed by Messrs. Holloway on the new Government building at the rear of the Local Government Board came out on the refusal of the firm to discharge all their non-society men.

Thursday, August 28th.

There is no substantial change in the situation. In the evening the London Association of Master Decorators informed the Press that, as the result of negotiations with the men's unions, there was hope of a mutual agreement. Failing that, an appeal to the Board of Trade was probable. Fifty-four firms not belonging to the association have conceded the men's terms, and about 1,000 men have resumed work.

A deputation from the London Building Industries' Federation has been received by Lord Beauchamp, First Commissioner of Works, and afterwards the following statement was issued: "The point raised by the deputation was the continuance of certain non-union painters in the employment of the Office of Works maintenance contractors. The subject was very fully discussed, and Earl Beauchamp said that, in view of the important issues raised, it would be necessary for him to reserve his decision pending further consideration."

Friday, August 29th.

The employers placed the following offer before the Strike Committee: "(1) That the men return to work on Monday next at an increase of one penny an hour. (2) That the remainder of the rules be submitted to an arbitrator to be nominated by the Board of Trade, whose findings shall be given as soon as possible and shall be final and binding on both sides."

The London Master Decorators' Association issued a protest to those firms who, by signing the rules drawn up by the men's society, had increased the difficulties of the employers who were endeavouring to arrange a settlement on broader lines.

Saturday, August 30th.

The Strike Committee had intended to take to-day a ballot on the employers' offer of a penny an hour increase, with reference to arbitration of the further halfpenny in dispute, and of the question of grading, but had to postpone it until Monday.

The disagreement between Messrs. Holloway and 300 men who struck against three non-union carpenters' labourers being employed at the new Government buildings at Storey's Gate, has been settled by the men joining the union.

TRADE AND CRAFT.

"Nuconomiser" Heating and Domestic Supply System.

A pamphlet issued by Messrs. Ashwell and Nesbit, Ltd., Barkby Lane, Leicester (also at London, Glasgow, and Liverpool), gives some interesting results of the re-organisation of low-pressure hot-water heating installations and domestic hot-water services. It is shown that a centralised "Nuconomiser" system installed at a workhouse for the Burnley Board of Guardians has effected an enormous economy. The annual saving was estimated at £528—£160 on 4,300,000 gallons of water at 9d. per 1,000, and £368 on 736 tons of coal at 10s. The success of the installation in effecting a greater economy than the firm had estimated is confirmed in the official minutes of proceedings of the Burnley Guardians, in which it is further

recorded that under the new method of heating two boilers were sufficient, as against three which would have been required under the old method. Further, there was a considerable saving in repairs, and the danger of accident had been reduced to a minimum. The actual saving in 1912-13 was £827 15s. 3d. This, it is stated, is only one of many instances of the economies in coal, water, and steam effected by these installations, the first instance being found at the Nottingham City Asylum, where the system was adopted twenty-six years ago, and a list of installations at asylums, public baths, country houses, factories, hotels, infirmaries, laundries, offices, and shops, public buildings, and workhouses, occupies several pages of the pamphlet under notice. As these references include some of the most important institutions in the kingdom, the economy and efficiency of the system are beyond question. A further pamphlet contains convincing evidence to the same effect, the instance given being drawn from the sixty-fifth annual report of the North Wales County Lunatic Asylum, Denbigh, for 1912-13, in which it is shown that by the adoption of the "Nuconomiser" system there has been in five years a total saving of £3,850, or £770 per annum.

A Convention of Representatives.

Messrs. Robert Ingham Clark and Co., Ltd., varnish and enamel manufacturers, held their annual convention of representatives on August 26th, 27th, and 28th. The convention assembled on the first day at the company's works at West Ham, where they were received by the chairman, who, after welcoming them in a short speech, in which he referred to the substantial and sustained progress of the business, distributed prizes to the winners of the various competitions inaugurated last year. The representatives were then conducted over the works and shown the various processes of manufacture of the "Britannia" brand varnishes, enamels, and specialties, including "Pearline" white enamel, "Abbey" white enamel, a pure zinc white enamel; "Omnilac," the special grade of copal oak varnish which, although only produced twelve months ago, is already well established in favour; "Lapine," the patent liquid filler, which, when applied to raw wood, prevents discoloration of subsequent coats of paint or enamel; and "Portaric," the new high-grade varnish for exposed work.

The second day of the convention was devoted to a discussion of various subjects relating to the sales organisation of the company. This took place at the offices in Caxton House, Westminster, and afforded the representatives an opportunity of inspecting the exhibition room which Messrs. Robert Ingham Clark and Co., Ltd., are just completing for the convenience of architects, decorators, and others, who may wish to secure information upon and examine without loss of time the actual results obtainable with the company's productions. In the evening the representatives were entertained at dinner at the Westminster Palace Hotel, and afterwards at the Empire Theatre.

On Thursday, the 28th, the convention again assembled at Caxton House, and engaged in a discussion of the important question of advertising, which concluded the agenda of work. The party then went by rail to Henley to join the saloon launch "His Majesty," which the firm had chartered for the day. The party landed at Maidenhead, where a banquet at Skindle Hotel brought the proceedings to a close.

THE ARCHITECTS' & BUILDERS' JOURNAL.

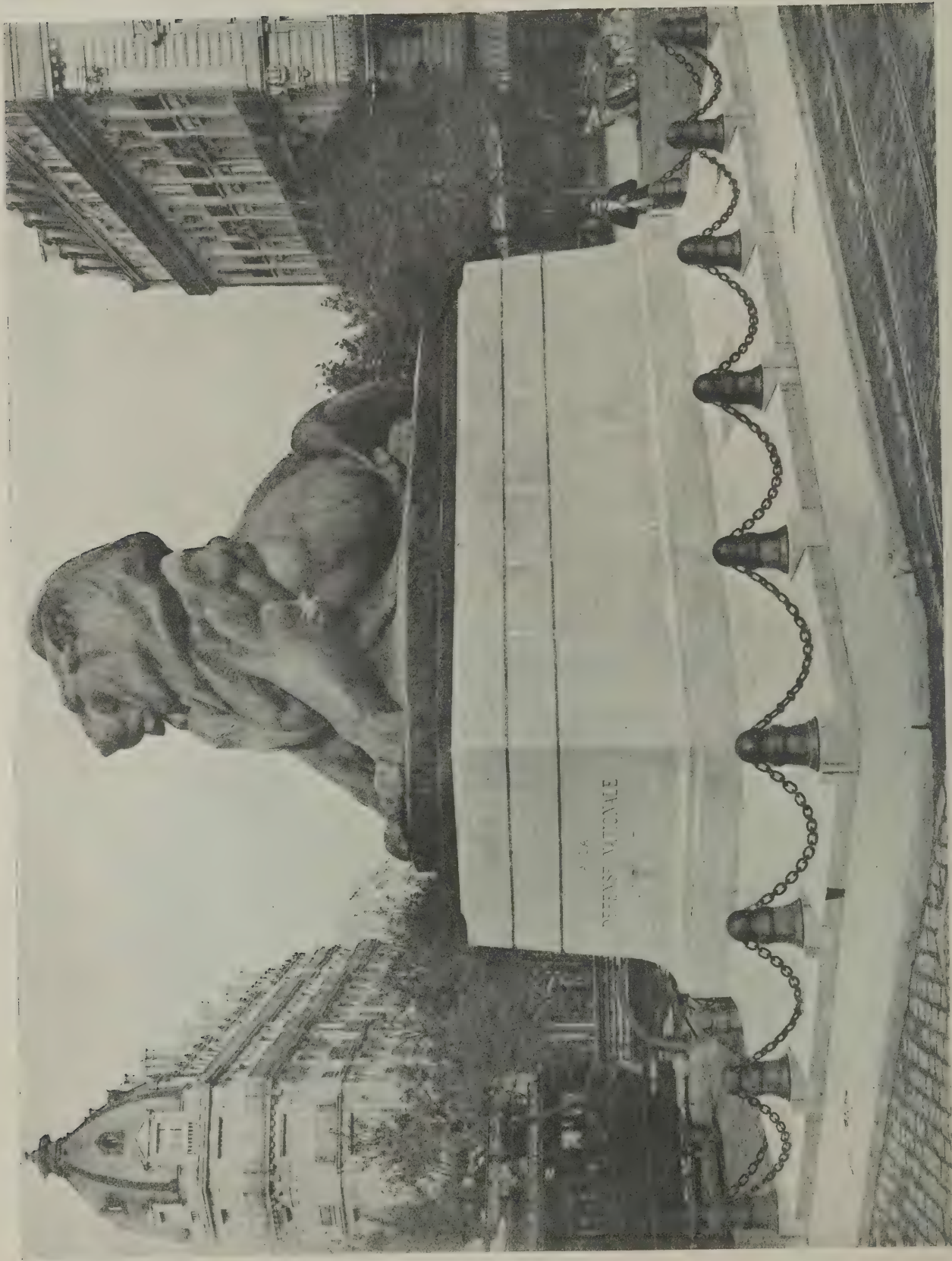
Wednesday, September 10, 1913.

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No. 50.



(From Piranesi.)



THE LION OF BELFORT, PARIS. BY BARTHOLDI.
(See page 256.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

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CAXTON HOUSE, WESTMINSTER.

VOLUME 38 No. 974

Streets of Misadventure.

It is next to impossible to appraise at its proper value the slight improvement in native architecture which has taken place during the past decade: time alone will enable this to be done. We are only beginning to focus clearly the events which occurred in architectural circles at a corresponding period a century back; and we are learning how fickle fashion has proved since that time. But the more we delve into the honoured book of the past, the more flippant by comparison appear the catchpenny novels of to-day.

Such is the carelessness of an age singularly prolific of all things, one teeming with display, luxury, and excitement, tolerating art because fashion decrees art to be the thing, but regardless, except in a few instances, of the rudimentary canons of refined taste. Many architects by their immodest works come under this indictment, such are the shackles of fashion. Thus it is evident in every city, every town, and almost every important street, that too many idols are worshipped in the temple of architecture; too many oracles are consulted, and nearly all answer "the thing that is not." No more poignant message is needed to arouse us from apathy to activity than that presented by the aspect of the London streets, where individual buildings, mainly caricatures of diverse styles, insidiously jostle the one with the other. This architectural pyrotechnic display causes the intelligent foreign traveller, who is familiar with the academic formality of other cities and who gathers his impressions from the more blatant examples, to imagine that the whole of London is cast in a similar mould. Nor can we, the citizens of the metropolis who dwell under the shadow of such anomalies and tolerate them, be expected to understand the subtleties of architectural refinement.

For the majority the realm of imagination does not exist, the need for improvement is never realised, and such slight advances as have been made in art are apparent only to the few. Some artists admit the need for retrospection, but the majority dismiss the fleeting fancy as Utopian. No finer truism was ever expounded than that which reads "the history of a nation is writ in the architecture." In the case of the present day a curious piece of writing is to be seen; unquestionably fine in parts, sententious in others, ponderously gay and amusingly popular by turns, interspersed with many an illegible and tear-blotted page. No particular buildings can be singled out for condemnation; thousands could be sentenced to the pillory, but, alas! it is too late to reform the offenders.

The demon of unrest has never at any period in the history of English architecture manifested his presence to such an extent as is evidenced in the hack-work of to-day. Repose in design is never sought for. To many it is almost as untranslatable as the fourth dimension. The interpretation of the "Classic Spirit" is left to the few. Intellectual architecture is avoided because its production involves labour. The elementary principles of design are ill-understood, if grasped at all, and by far the most important factor, the relation of architecture to life, is completely overlooked. Hence

the present chaotic state of the architectural vernacular, the grovelling amid the unclean straw of fashion, the raucous mouthings of the camp followers who hamper the fighting army. This is true of all the principal streets. Even the finest residential quarters are not unscathed, but the thoroughfares of commerce are the most banal.

It would be unfair to condemn the whole aspect of London for the faults of modern exponents—other cities also have streets of mediocre aspect; Paris has many, New York in some quarters is forcibly reminiscent of London. Although mediocrity can never be entirely eliminated, however cultured the leaders of architectural thought become, the stupid demeanour associated with certain newly-erected buildings in London can and must be attacked.

The evolution of architecture must of necessity contain a series of surprises. Because its spirit is consonant with life it is progressive or retrograde, therefore its varied moods are never exactly repeated. Thus, no matter how often precedent is consulted—when fresh problems of building are under consideration (and this is acknowledged to be the surest road to sound methods of design), the making of something new and not the literal reproduction of something already in existence is the aim of the cultured artist. To an amazed auditory, architecture, in a collective sense, appears as a confused series of styles, the ramifications of which are wonderfully interwoven and tangled; to the historian it reads as an authentic account of civilisation from the earliest times; but to the designer it offers a musical scale wherewith to test each new composition.

We are heirs of the ages, the heritage of past achievement is the valuable legacy which has come to us. It is our bounden duty to increase that vast wealth of which we are the stewards.

Reverting to the subject of present day architecture as practised in this country, it seems almost incredible that the Classic tradition as applied to civic architecture should have been misrepresented, and that during the past quarter of a century the activities of architects should have been almost entirely concentrated on what after all must be regarded as a subordinate branch of the noblest of the arts.

This misdirection of talent and segregation of specialists was individualistic rather than collective in its tendencies. While it forced architects to encompass the conception of small problems, with a fair meed of success, it forbade the study of those great works which belong to the dignity of cities. We know that the Classic tradition practically extends to within our own times, but we also know that the past decade has not witnessed the erection of one public building co-equal with the contemporary achievements of the Continent of America.

In spite of hugger-mugger systems, the cult of architecture is unquestionably advancing in England. The chief educational centres are training men who will eventually enter into the practice of the most esoteric of the arts—men equipped with a knowledge of right

methods. This in itself is a favourable sign of the revolution architectural education has gone through during recent years, but more remains to be accomplished. If groups of earnest architects could be prevailed upon to co-operate in directing students towards the right paths of design, then a great change would become apparent in that which reflects the best architecture, namely, the contemporary vernacular. The chief centres of architectural education must be regarded as parent cities, the citizenship of which is only obtainable by laborious study and continual application to the art of design. The French atelier system offers a good illustration of the work done by groups of architects and students, working subsidiary to the main centres of education. R.

The New Ceiling of the Comédie Française.

ADAM and Eve "at the moment of the temptation" is the subject with which M. Besnard has embellished the ceiling of the Comédie Française, and no man shall impeach him of impropriety, except, perhaps, as regards the position of the subject: the episode illustrated being at the bottom of the whole business of *comédie Française*, if not of *comédie humaine*. The artist seems to have used poetic licence in subjoining to this strong and eternal central theme the figures of Tragedy and Comedy bearing crowns to the four masters of the French Theatre—Corneille, Racine, Molière, and Victor Hugo; but a French artist can make a graceful blend of all sorts of incongruities and anachronisms, whereas an Englishman, if he were daring enough to essay such a *tour de force*, would be sure to make a sad hash of it. He would, indeed, work timidly and haltingly, in the disquieting consciousness of an unsympathetic atmosphere. On the other hand, M. Besnard's work is being warmly—almost extravagantly—praised—"the colours are of an incomparable richness. Never, it would seem, has the illustrious artist found upon his palette warmer or more varied tones, nor assembled them more harmoniously." Setting aside altogether the question of theme, one is tempted to ask the pertinent question, When, in this country, are we likely to see an artist of M. Besnard's standing commissioned to paint a theatre ceiling? An equally pertinent question is, When are we going to get a theatre that is worthy of the highest skill of the decorative artist? We are travelling in that direction, but not at express speed.

The Garden City Movement at a Crisis.

TO be ruined by success is a fate that may overtake not only empires and states, but men and movements. So tremendously successful has been the garden city movement, that the association which gave it its chief impetus is now in no small danger of being swamped by the flood it has let loose. The Garden Cities and Town Planning Association, we learn with mingled amusement and regret, is being overwhelmed with applications for advice gratis, and for more substantial assistance at the same rate of remuneration. In two months the association has received more than 200 applications for such services as it could render in the promotion of garden city schemes in various parts of the world; while during the present year it has caused several hundreds of lectures to be given, and has issued thousands of copies of propagandist publications. It is now in danger of out-running its financial resources. It depends for its existence on voluntary contributions, and these are by no means keeping pace with its activities, but, we should imagine, tend rather to diminish as the latter increase, partly because of an unfounded inference that so apparently flourishing an institution cannot be in need of support, and partly because, when the success of a movement is assured, enthusiasm for it dies down. It is clear, however, that, with its accumulated informa-

tion and experience, the association is capable of rendering invaluable service to the movement in which it was so successful a pioneer, and it were a pity if its utility were restricted for want of funds. At the Garden City movement much mild satire has been flung, but very little of it sticks; for no one doubts that, in spite of its casual absurdities, the movement is at heart sane and sound, and stands for the most remarkable social tendency of modern times, as well as for the predominating influence in minor domestic work. This influence may be said to be a matter of attraction and reaction. To sneer at "the Garden Suburb style" is to convey an impression, which is in great part erroneous, that a new movement created a new style. What really happened was much less dynamic than a new renaissance. Decent minor work was widely scattered, and, in a manner of speaking, the Garden City movement collected it, so that we got whole streetfuls instead of isolated examples. That was what we have called the matter of attraction. There were, of course, modifications in accordance with purpose and environment, and these adaptations constitute the reaction through which the so-called and over-maligned "Garden City style" was evolved. The obvious danger is that the "style" may become stereotyped; and hence the German delegates who recently visited our principal garden cities were the more welcome for the implicit augury of foreign variants from which, in our turn, we may learn fresh lessons and gain further stimulus. A world filled with garden cities of one or two types is an appalling prospect, which is fortunately unrealisable, though not inconceivable.

The Painters' Strike.

THE ballot of the National Amalgamated Society of Painters and Decorators as to whether or not the members would accept the employers' offer of an increase of a penny an hour, as against the three-halfpence demanded, having resulted in an overwhelming majority—twenty to one—against the compromise, the strike has been allowed to drag on, to the impoverishment of the men, the disgust of the employers, and the delay of much important work. As, in their demands for increased wages, men usually ask for a halfpenny more than they expect to get, it was supposed that the employers' offer would settle the dispute. Doubtless it would have had that effect if the men had been out for money only. But it has now become quite clear that, as we suggested at the outset, there are other matters which the men regard as of more vital importance than immediate monetary gain. Chief among these is the desire to strengthen their union, and to acquire a similar standing to that which has been won by other trades. As we have pointed out on a previous occasion, this is a case in which the practical issues are very considerably complicated with the sentimentalism which is never really absent from human affairs, although the hard-headed man of business would have us believe otherwise: that is precisely where he makes a serious mistake, and why he so often fails ignominiously in his dealings with masses of men. It is always a factor to be realised and reckoned with, and in the present strike it prevails to an extraordinary degree. Apparently it is also affecting the relations between the London Master Builders' Association and the London Master Decorators' Association, the former having repudiated the offers to the men which the latter have made. Further evidence of the sentimental atmosphere pervading the dispute may be found in the statement by the employers that owing to the stoppage of work at one of the hospitals, eighty patients were unable to obtain admittance, and in the men's retort "that the employers were using the sick and the lame to get the sympathy of the public for their own ends." But the chief potency of the sentimental factor resides in the ever-present possibility of

a general strike in sympathy with the painters. But for fear of this contingency the employers would have settled the dispute out of hand by the wholesale employment of non-unionist painters, of whom the supply is apparently limitless. At the time of writing, there are signs that by the time this reaches the eye of the reader the painters' strike will be over. The Office of Works electricians, who had struck in sympathy with the painters, were to resume work yesterday.

The Dublin Disaster.

AS it is as yet impossible to say exactly what caused the collapse of two houses in Church Street, Dublin, on September 3rd, by which several lives were lost, and as the matter is still *sub judice*, it is only possible to refer to it in general terms. As the result of the more efficient inspection which property owners so often denounce as irksome and unnecessary, such occurrences are nowadays comparatively rare; but it is within living memory that they were formerly about as frequent as fires, and much more fatal. It is stated that the fallen houses were more than a hundred years old, and if that is so they were put up at a period considerably antedating scientific building construction. At a time when wood was cheap and saw-milling as we know it had not come into being, the builders made no nice calculations in stresses and strains, but, in order to be on the safe side, put up unnecessarily heavy scantlings; nor did they trouble themselves overmuch as to whether these were properly housed and tied. They trusted to the weight which, in course of time, proves too much for the aging walls. Whether or not this excess of scantling is apparent in the Dublin disaster remains to be seen; but it is a condition that should render all old houses suspect, and it is of course complicated with the liability of timber to decay, especially in a humid atmosphere like that of Dublin. As the disaster is certain to be followed by more rigorous inspection of old property, it may not be out of place to suggest that there ought to be some method of rendering the process less barbarous in its incidence on the property owner—some loan fund, for instance, on which he could draw for the reparation or demolition of old buildings. He would then willingly co-operate in measures which he now is only too much interested in opposing or evading.

Correcting the Insular View.

A SOMEWHAT grudging acknowledgment of the suitability of Classic styles for church building is made by a contributor to the "Church Times," who is travelling in Italy. He states categorically, as if in some doubt as to whether his readers were acquainted with the fact, that "the architectural style typical of the City of Rome is the Baroque. There is little Gothic to be found." Then he draws a remarkable, and, as we hold, a wholly unwarrantable distinction when he says that "the great Renaissance buildings, including St. Peter's, are inspired rather by classical antiquity than by the Christian spirit." But being on the spot, the writer is himself unable to resist the Classic charm. Taught by Ruskin "it is our custom," he says (ay, there's the rub!), "to run down" Classic churches! The confession is as valuable as it is naive. Gothic is Christian, and Classic is pagan, then, simply as a matter of prejudice and predilection! And then follow some rather vital admissions. Classicism "has, no doubt, real merits." Moreover, "the architects of that school thoroughly understood the management of the bright Italian sun, and gained beautiful effects of diffused light in their domes and side-chapels. We feel they were masters of their art," and so forth. Truly travel broadens the mind; and we could wish that many more churchmen would make the "grand tour." They would certainly come back with vastly revised views on

church architecture, and in particular would stand some chance of divesting themselves of the crude notion that Classicism and Christianity are antagonistic. That this is purely an insular—one had almost said a parochial view, the "Englishman in Italy" appears to have begun to feel in his bones, when unfortunately his holidays terminated, and he came back to England and Ruskin and pseudo-Gothic, which, however, will none of them be ever the same again for him, now that he has taken at least a grain or two of the saving salt of cosmopolitanism. It is not evident that he is a clergyman. Assuming that he is, as seems antecedently probable, the supposition gives rise to a curious reflection: How is it that college-bred youths who become clergymen can conceive Classicism as being alien to the spirit of religion? We have a shrewd suspicion that it is mainly because at 'Varsity they get an overdose of the Classics, and thereafter hate everything that revives the association. But is it not passing strange that such a misconception as that Gothic is Christian and Classic is pagan could enter the minds of people who have enjoyed the advantages of university and clerical, training, and therefore might be expected to have a taste for the Classics and some knowledge of the history of Christianity? The mere mention of Rome shows the hollowness of the curious assumption in favour of Gothic.

Regent's Quadrant: New Phase.

ATTENTION is being drawn by Mr. Percy W. Lovell, secretary of the London Society, to a new and somewhat disconcerting phase of the Regent's Quadrant muddle. Apparently the Government are about to repeat precisely the same mistake that the London County Council perpetrated with respect to Aldwych. It has been recalled recently in the Press that the Council had not sufficient courage to adhere to the general scheme for Aldwych to which originally they required architects to conform. Finding considerable difficulty in obtaining tenants who would consent to conform to that scheme, the Council at length abandoned it at discretion, leaving the tenants' architect almost a free hand in the matter of design, with miscellaneous results that, while—if we regard each building as an independent entity, they are certainly on the whole much better than might have been anticipated to accrue from such a vacillating policy—are nevertheless so many monuments to the invertebracy of the controlling powers, who in their timorous panic have recklessly muddled the finest town-planning opportunity that London has had since the Great Fire. Similarly, as Mr. Lovell points out, the Government, weakly yielding to evil counsels, have thrown over Mr. Norman Shaw's design, and can make no better use of the Quadrant Committee's suggested modification of that design than to announce that any of the leaseholders' architects are at liberty to present plans for rebuilding, and that such plans will be considered if they agree with the Committee's suggestions! This is virtually to abandon all architectural control, as it allows the leaseholders' architects to do as they like provided they keep to the prescribed dimensions. The proper course was to draw up a comprehensive scheme showing the intentions of the Committee as interpreted by competent architects, and then to compel adherence to that scheme. The Government authorities had not the courage to do that, but, weakly yielding to clamour, are virtually giving the leaseholders a free hand. It is one more proof—and utterly superfluous at that—that British Governments know nothing and care less about architecture; which is the one thing in which compromise will not save their skins. The Regent's Quadrant episode is, in its latest phase, more despicable than ever; it is as if the Government had lost their heads and abandoned the whole thing to Satan.

OUR ILLUSTRATIONS.

The Lion of Belfort, Paris.

BARTHOLDI'S Lion of Belfort (see page 252) is a fine reproduction in bronze of a lion which is carved in the cliff at Belfort, on the border of Switzerland. It stands in the Place Denfert-Rochereau, and bears the inscription, "A la Défense Nationale, 1870, 1871." Rearing up on its fore-paws, it is rather more majestic in pose than those of Landseer on the Nelson Monument, which lose somewhat in effect by lying level on their base with paws fully extended. The Paris example is also slightly larger in scale. Landseer has been accused of "humanising" the facial expression of his lions; and the criticism might with equal justice be applied to Bartholdi, whose lion is unmistakably French.

Designs for Chimneypieces, by Piranesi.

Piranesi was most prolific of designs for chimneypieces, and the two examples that are shown on page 261 are reproduced from a stately folio that is almost wholly devoted to this subject. The architect's fertility of invention—that is to say, his power to produce so many variations on a single theme—is as wonderful as his draughtsmanship. His fecundity, indeed, is regarded by many as his undoing. It led him very often to a riot of excess in detail; and his overloading of his designs is doubtless the reason why so few of them were executed.

Panel from a Sarcophagus in the Museum at Constantinople.

The panel shown on page 263 is remarkable not only for the vigour and grace of the design, and the dexterity with which the space is filled, but also for the remarkably fine rendering of the horses' heads, which are full of character, the unshapeliness of their bodies being perhaps faithful to the unimproved breeding of classic times. Their terror at the lion in their path—a rather sorry specimen—is better expressed in their faces than in their attitudes. The shapes and proportions of the mouldings are worth more than a passing glance.

House for F. N. Garrard, Esq., at Goring on Thames.

The house illustrated on page 265 is being built on a sloping site and the ground to the South and West will be laid out with Terraces and Gardens. The materials which have been adopted for the building are flints used in local manner for the general walling, with stone dressings—bricks for the chimneys and dark red tiles for the roofs.

Cardiff Fire Station.

We illustrate on pages 266, 267 a working drawing of the tower of the new Cardiff Fire Station, now in course of erection from the designs of Messrs. E. Vincent Harris and Thomas A. Moodie, A.A.R.I.B.A., who were awarded first place in the competition held in the latter part of last year. This is an excellent example of the working drawing as it should be prepared, all the necessary dimensions and details of material to be used being clearly shown.

Residence at Elberon, N.J.

From the point of view of design, American architects have failed to reach in their domestic work the high level achieved in their civic and commercial buildings. Possessing as they do a peculiar aptitude for design in the "Grand Manner," it is only natural that the bulk of their best modern domestic architecture should be found to be either based on "Colonial" models or conceived purely on Classic lines. The residence of Mr. Daniel Guggenheim (Carrère and Hastings, architects), a detail of which is illustrated on the Centre Plate in this issue, comes within the latter

category, though a good deal of homeliness, not usually observable in Classic work, has been infused into the design.

Portraits of Architects.

The half-dozen portraits given on pages 258 and 259 deserve a word or two. They are reproduced from engravings made by W. C. Edwards for Allan Cunningham's "Lives" from originals that are in a sense Classical, since, with one exception, they were all painted by masters. That of Inigo Jones is from the painting by Vandyke; of Wren, by Sir Peter Lely; of Vanbrugh, by Sir Godfrey Kneller; of Gibbs, by W. Hogarth; of Chambers, by Sir Joshua Reynolds, whose sitters all seemed, from their likeness to each other, to be blood-relations. The exception mentioned is in the instance of the portrait of William Kent, which was engraved from a drawing by Kent himself, who evidently had a very clear perception of his likeness to the noble Romans of old, and was careful not to let it lose anything in the transcription. A few houses of moderate elegance (says Allan Cunningham) "still attest that Kent was an architect; an altar-piece or two mouldering in the churches of London signify that he claimed the name of a painter." Kent was, of course, a protégé of Lord Burlington, who thought he had discovered a new painter; and the young man's miserable daubs were accepted by Society as works of genius.

CORRESPONDENCE.

The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.

Correspondents are asked to be brief, and to write on one side only of the paper

"Can Architecture be Taught?"

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Your comments on Mr. March Phillipps's article in the "Morning Post" are not a whit too strong. Analogies, though dangerous, are sometimes to the point, and there is much bearing on your contention in Napoleon's dictum that "in war *men* are nothing, a *man* is everything." You must have a directing mind, *trained to direct*; and just as, with a few brilliant exceptions, the best drill sergeant has not become a tactician, so the mechanic, however clever, seldom becomes the designer. In fact, the past yields more examples of the gifted amateur excelling in design.

Mere familiarity with bricks, slates, and timber without training in grouping and proportion, unless for the specially gifted, whose genius will come out in any case, never did and never will produce a designer; to cull another paragraph from military literature, the gifted Colonel Henderson's Life of Stonewall Jackson, "After serving in twenty campaigns Frederick the Great's battery mules were still mules."

GEORGE REAVELL.

"The Lay-out of the New Delhi."

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—In the leading article of your issue of the 3rd inst. on the subject of the site of the New Delhi, one very important fact seems to have been lost sight of. I allude to the fact that outbreaks of cholera always follow the course of rivers. The medical profession settled this law in my time thirty or forty years ago, and I have not heard that it has since been subverted. It follows as a matter of course that every outbreak of cholera in old Delhi will be followed by a similar outbreak in new Delhi, whereas if the latter is built to the north instead of to the south, it will be answerable for its own sins only.

R. F. CHISHOLM.





RESIDENCE OF MR. DANIEL GUGGENHEIM, ELBE



N, N.J. CARRÈRE AND HASTINGS, ARCHITECTS.

HERE AND THERE.

FOR our sins, we are all well enough acquainted with the stage Irishman, the stage lawyer, and other pronounced libels on humanity, which, however, we eagerly accept as true types, thereby woefully warping our judgment; but fortunately there is as yet no generally accepted fixed type of stage architect. "Horace Ventimore," of "The Brass Bottle," was the rather insipid and colourless hero of that rollicking farce, and he might have belonged to any other profession or to no profession at all if Mr. Anstey had not wanted to embarrass him with the gratitude of the liberated Djinn, who ran up for him in a night an Oriental palace of rare splendour, but defective drains. It must have been sheer exigency, too, that made architecture the vehicle of Pecksniff's hypocrisy. Any other business that Dickens could have turned to similar account would have suited Pecksniff just as well. Certainly he has never been regarded as a typical architect, but merely as a typical humbug. If Registration had been in vogue, Dickens must perforce have chosen some other occupation for him, and the change would not have mattered in the least, so far as characterisation is concerned; although the author might easily have got hold of something more easy to manage than he found the architectural ghost.

Even Mr. Punch, who pretty frequently chaffs the architect, has not succeeded in evolving any particular type that can be seized upon as being perennially representative of the profession as a whole, nor, indeed, of any section of it. Perhaps he hasn't tried. All the same, he occasionally reveals rather more than a casual acquaintance with certain professional characteristics, or, rather, with certain poses of the moment.

Lightly but vigorously sketched is the pen-portrait, in a recent issue, of one Benson Benson Friba, "harshtect" and "coming man," who we are quite sure is intended to be nobody in particular, because he recalls so many "coming men." To that extent he is a type. He is thus introduced: "Bell rings, and I am shown into Benson's room. There are two dusty silk hats on top of cupboard, violoncello case and golf clubs in corner, and Gladstone bag in middle of floor. Benson Friba was in shooting clothes. Nervous manner: pulls his fingers and says 'I see, I see,' but *does* seem to understand." Then the client, who calls himself Balbus ("Balbus built the wall," *bien entendu*—I see) "told him what we wanted—i.e., library, drawing-room, Brodie's patent self-cleansing lavatory basins, conservatory, perforated gauze to larder window to keep out flies, entrance hall with alcove at side for billiard table (full size), study, boudoir, squash racquet court at back and scraper at entrance firmly fixed because ours wobbled about and the man who came to mend it did not do it properly. Dining-room, of course, and kitchen, etc. Friba listens nervously; says, 'I see, I see,' and then asks, 'What style?'" Client replies, "A thoroughly good style of house," but soon realises that Friba means, "What style of architecture?" for Friba is careful to make the question plain by asking what building the client particularly admires. "Westminster Abbey," I tell him. "I see." Friba then pensive; finally he says, "The sort of house you want is a Pseudo-neo-Grec house." Client thinks that Pseudo-neo-Grec will do, providing the firm door-scraper and the fly-proof gauze are not omitted.

This, and a good deal more in the same strain, one realises to have been written from the "harshtect's" point of view—certainly not by Friba, but by his assistant, young Ariba, who is obviously in a position of advantage for scoring heavily off his chief as well as

getting home pretty heftily on the vile body of the client. A few more years shall roll, and the "coming man" will be gone into a Pseudo-neo-Grec temple built to please himself on some sun-kissed hill-top. And, when Ariba, grown into a mannered, nervous, and finger-pulling Friba, becomes in his turn the butt of a newly-fledged Ariba, what will be the catchword then, I wonder? Still Pseudo-neo-Grec? I should not be surprised; for on observing in the Park the other day a lady whose drapings were Pseudo-neo-Grec or nothing, I was instantly comforted by the reflection that though certes there be also fashions in architecture, these are by a century or so more enduring than fashions in clothes.

But in good sooth I mislike false-seeming "Pseudo." It hath a smack—doth somewhat grow-to. We had enough of that same "Pseudo" when Gothic was its cater-cousin. And I have no great relish either for "neo," with or without the French embellishment of an accent, nor am I greatly enamoured of Grec. Marry, say I, Grec me no Grecs, but give me the plain English of it, if you dare. But you do not dare, and that's the humour of it. Given a client like Balbus, it is necessary to stop his yammerings about keeping out flies, and his fleshly yearnings for squash racquet courts, by flinging at him some such subduing word as Pseudo-neo-Grec; though for my part I should not have the heart to throw it at a dog.

Then, too, there was madam to be placated in the matter of her sex's unholy passion for cupboards. It seems that Pseudo-neo-Grec is compatible with cupboards; for Friba sprinkled them so liberally over the domestic interior that madam could not find them all in her preliminary survey; the smell of the paper on which Friba had drawn his plans precluding anything like thorough search. I sympathise with madam; for I have often wondered whether it is really necessary for architectural drawings to bear with them so pronounced an atmosphere of Greece. Now for the first time I perceive the advantage of this exasperating smell. It forbids a too meticulous examination of details, and thus as it were disarms criticism: especially the criticism that is most warrantably dreaded—that of the lady who triumphantly retorts upon your explanations: "Yes, yes, Mr. Friba: but *you* are only designing it. I have got to *live* in it, you know!" That the protective perfume may, however, be occasionally a little too pungent, may be inferred from the story (whether or not it happens to be true) of the grand dame who sent for the sanitary inspector to take away the unclean thing, and who afterwards sued the architect for moral and material damages. This was to bring architecture into bad odour.

With reference to my observations last week on the Protectors of Ancient Buildings, a correspondent thinks that the Restoration comedy was at its funniest when the anti-restorers themselves engaged in restoration, in response to the challenge conveyed in the observation that, since nobody but themselves seemed to know how restoration should be done, they ought by practical demonstration to reveal the happy secret. That was a very neatly devised dilemma. The "preservationists" were invited to prove their precepts or hold their peace. They took the more heroic course, and thus betrayed themselves into the hands of the enemy, who sat in the seat of the scornful watching the work, and saying, "Ye that boasted of showing us the better way, behold you have made a bigger mess of it than we did."

NEMO.

FROM INIGO JONES TO WILLIAM CHAMBERS.

WHATEVER the demerits of Allan Cunningham as a biographer, he has at least the cardinal virtue of interesting his reader. His pleasant, gossip style, and his unailing fund of anecdote, have conferred upon his "Lives of the Most Eminent British Painters, Sculptors, and Architects" an immortality denied to many a more trustworthy but less seductive chronicle.

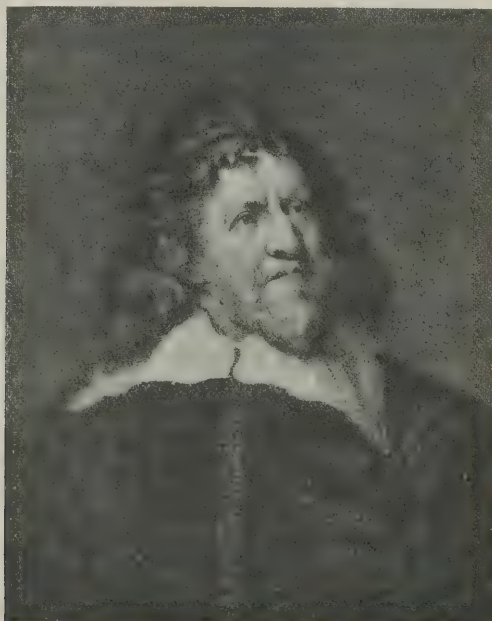
Cunningham (born 1784, died 1842) published these "Lives" in 1830-3. The section devoted to "Lives of the British Architects" bears the inscription, "To John Soane, Esq., R.A., Professor of Architecture to the Royal Academy, F.R.S., F.S.A., etc., etc., etc., these Lives of British Architects are very respectfully inscribed by the Author." He begins with William of Wykeham, from whom he jumps to Inigo Jones. The manifest scarcity of biographical information about William of Wykeham does not in the least trouble the loquacious Allan. He gives us seventy pages of entertaining gossip, not unmixed with scandal, and eked out with quoted opinions on the relative merits of Gothic and Classic. He states that John Evelyn "was the first who bestowed on the picturesque architecture of the Church the designation of *Gothic*, and Sir Christopher Wren adopted the term, though he rejected the idea on which it was founded." Evelyn was a convinced Classicist. "The ancient Greek and Roman architecture," he writes, "answers all the perfections required in a faultless and accomplished building; such as for so many years were so renowned and reputed by the universal suffrages of the civilised world, and would doubtless have still subsisted, and made good their claim, had not the Goths and Vandals subverted and demolished them, introducing in their stead a certain fantastical and licentious manner of building, which we have since called *Modern* or *Gothic*; congestions of heavy, dark, melancholy, and monkish piles, without any just proportion, use, or beauty." Allan's comment is, "We look at the churches of York, Lincoln, Salisbury, or Winchester, and smile at the pedantry of the amiable Evelyn." He quotes, however, a long passage in which Horace Walpole discusses the subject more temperately, summing up the position in a single antithetical sentence—"One must have taste to be sensible of the beauties of Grecian architecture—one only wants passion to feel the Gothic." Cunningham's reference to the

mediæval craftsmen will not greatly delight Mr. March Phillips: "The facility with which these edifices were reared was aided much by the command which a feudal prince had over his people; but more by the power of the Church over hordes of illiterate, workmen, who had at once before their eyes the fear of hell, the hope of heaven, and the impulse of good wages."

Into the account of Inigo Jones (born 1572, died 1653), of whom Cunningham wrote a separate biography, is imported a good deal of more or less lively anecdote; much use being made of Ben Jonson's splenetic and childish lampoons. Although Jones was born not far from St. Paul's Cathedral, Pennant claims him for a Welshman, on account of his "violent passions," which, however, appear to get sufficient illumination from his Spanish front name, out of which Ben Jonson made so vile and spiteful a pun in his "Expostulation":

"By all your titles and whole stile at once
Of tireman, mountebank, and Justice Jones,
I do salute you: are you fitted yet—
Will any of those express your place or wit?
Or are you so ambitious 'bove your peers
You'd be an *Assinigo* by your ears?"

Ben, who "wrote with a porcupine's quill dipt in too much gall," and who had himself worked on a scaffold "with a trowel in his hand and a book in his pocket," did not hesitate to taunt Jones with having worked with handsaw and plane; but to what extent this honourable charge is true, even Webb, his nephew and pupil, and the husband of his only daughter, seems unaware, for he has to confess that "there is no certain account in what manner he was brought up or who had the task of instructing him." Nor is it known how long he remained abroad, for Webb's reference is here again very vague when he says that Jones was "much more than at home famous in remote parts, where he lived many years, designed many works, and discovered many antiquities before unknown, with general applause." Cunningham sums up the effects of the visit very neatly: "With all the finest specimens of the Gothic and Tudor architecture Jones was early acquainted: he had made the picturesque his special study, and his original leaning was towards them in preference to the classic creations of Greece and Rome. His visits to Italy shook his faith; the grandeur and the durability of the Roman temples had their



INIGO JONES.



CHRISTOPHER WREN.

effect upon him as they had upon all; he examined, inquired, dug, measured, and drew; and, laying his palette and his brush aside, took to the pencil, the plummet, and the square, and resolved to do for his native country what the artists of Italy had done for theirs."

Some of Jones's little mistakes Cunningham discusses at considerable length—as his declaring Stonehenge to be the remains of a temple of the Tuscan order and dedicated to Coelus; and his fine, confused bungling of the restoration of old St. Paul's, where he "veneered the sides with very bad Gothic, and then added a Roman portico." But that was before he became a whole-hearted convert to modernity.

Of Wren (1632-1723) but little need be said at this time of day, although Cunningham, writing in advance of a flood of biographies, gives him more than a hundred pages. We have heard all about his invention, at the age of thirteen, of astronomical and mathematical instruments; of his being described by Evelyn as "that miracle of a youth" and "a rare and early prodigy of universal science"; of the claim for

him that, putting into actual practice of Torricelli, he invented the barometer; of his fifty-three other and very miscellaneous inventions—which, ranging from a method of writing in the dark to "easier ways of whale fishing," include "a pavement harder, fairer, and cheaper than marble," and "new designs tending to strength, convenience, and beauty in building"; and of his visit to France, and his promise to a friend "to bring you almost all France on paper"—although "Bernini's design of the Louvre I would have given my skin for, but the old reserved Italian gave me but a few minutes' view." Concerning Wren's shortness of stature, it is Cunningham who has rescued from oblivion the story that Charles II., walking through his newly-built hunting lodge at Newmarket, said, "These rooms are too low." Wren replied, "An it please your Majesty, I think them high enough." Whereupon Charles, stooping down to Sir Christopher's stature, said, with a smile, "On second thoughts, I think so too."

John Vanbrugh (1664-1726) was thirty-six when he "laid down the dramatist's pen, took up the archi-



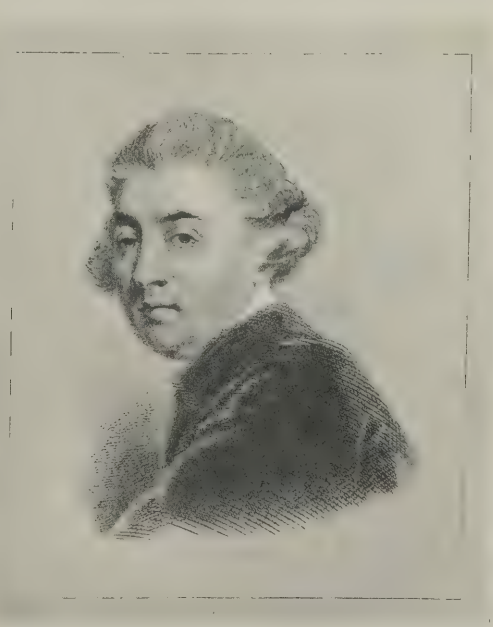
JOHN VANBRUGH.



WILLIAM KENT.



JAMES GIBBS.



WILLIAM CHAMBERS.

tect's pencil, and designed one of the noblest mansions in England—Castle Howard." This *apologia* for his work has a direct application to the rival schools of to-day: "It is true that he has departed wholly from the severity of Grecian models; but so had the great Italian artists, and likewise Wren, whom no one has ever yet accused of want of classic taste. He has in my opinion obeyed the spirit and violated the letter of the old classic law. . . . He has dealt in the original elements of art, and disdaining to copy where he could invent, has created an original style of his own." Lampooned prodigiously, he took no notice of rhymes, but went on imperturbably with the strange double duty of "writing plays for the stage and planning palaces for the nobility." In a way he combined these functions by building a theatre in the Haymarket—an adventure that nearly ruined him. For his work at Blenheim he was paid mainly in insults; the termagant widow of Marlborough forbid-

praised by Horace Walpole as "the great restorer of the science" of architecture, and the "inventor of landscape gardening." This fulsomeness nauseates Cunningham, who very reluctantly admits Kent to his Walhalla.

William Chambers (1726-1796), the son of a Scottish merchant, was born in Stockholm, and having been educated at Ripon, went, at the age of sixteen, as supercargo on board a vessel bound for China, where he made many drawings of buildings and gardens. Afterwards he spent some time in Italy, measuring and drawing and studying "with unwearied application, as Hardwick, his pupil and biographer, records, the works of Michelangelo, Sangallo, Palladio, Scamozzi, Vignola, Peruzzi, Sanmichele, Bernini, and others: "whose designs," be it noted for purposes of present-day controversy, "were in general guided by the rules of the ancients, but whose extraordinary talents, exalting them above the character of mere imitators,



GROOMBRIDGE PLACE, SUSSEX: WEST FRONT. INIGO JONES, ARCHITECT.

ding him to enter the building. It was his last adventure in architecture.

James Gibbs (1682-1754) was an Aberdonian by birth, and as a youth went to Holland, where he attracted the notice of the Earl of Mar, who sent him to Italy, where he studied under Garroli for ten years, and then came to London, where Mar introduced him to the commissioners entrusted with the authority to build fifty new churches. The first building which he completed, however, being at King's College, Cambridge. His first London church, St. Martin's, is his best monument, with the doubtful exception of the Radcliffe Library at Oxford. Chambers over-praised it by comparing it to the Parthenon; whereupon the pedantic Gwilt fell foul of it, protesting that while it was one of the best churches in London, it could not "enter into the slightest degree of comparison with the chaste grandeur, the dignified simplicity, and the sublime effect of the Parthenon." Having at length achieved eminence, Gibbs made £2,000 by the publication of a book of his collected designs, which show almost every kind of structure except a bridge.

William Kent (1684-1748) was prodigiously over-

produced an originality in their compositions that fully established their fame, and pointed them out as the fittest models for succeeding artists."

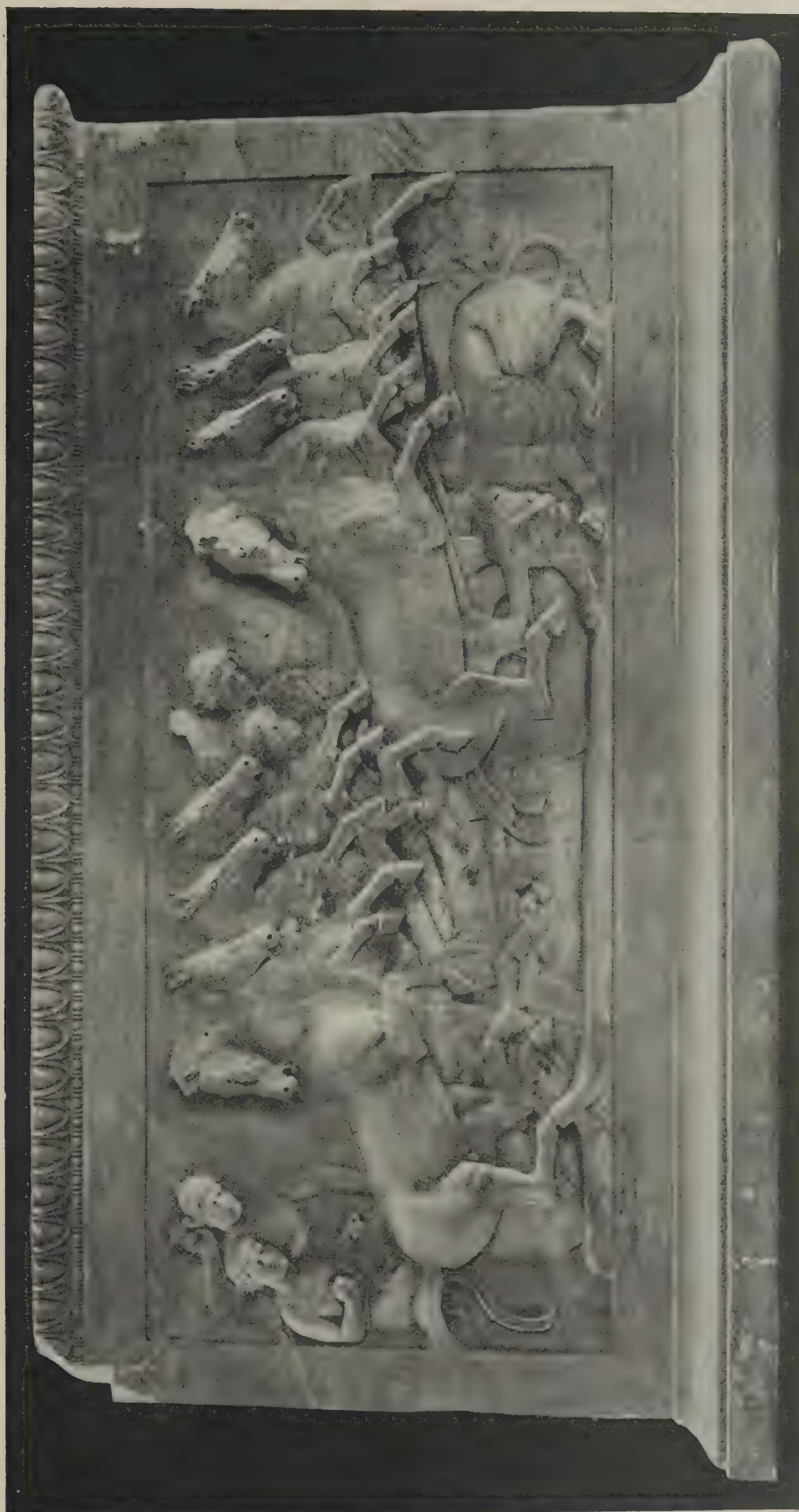
Chambers went also to Paris, where he studied under Clerisseau, and paid particular attention to the work of Claude Perrault and Jules Mansard. Architecture was then a fashionable study among the nobility. A tutor in architecture was required for the young prince who afterwards became George III., and on the advice of the famous John Carr of York, Chambers was appointed to the post. The young prince, fascinated by the architect's agreeable manners, became so much attached to him that, on ascending the throne, he appointed him royal architect. Gibbs, in his "Treatise on Civil Architecture," attempts a sort of *rationale* of architectural study, or analysis of taste and propriety; but, never having been to Greece, he makes the profound mistake of preferring Roman architecture. Hence his heaviness, as exemplified in Somerset House; and hence, perhaps, the Roman-fatherly manner in which, in his "Dissertation on Oriental Gardening," he demolishes the pretensions of Capability Brown.

F. R.



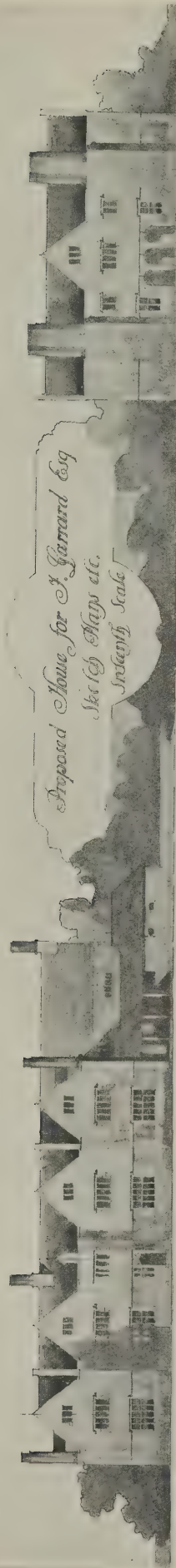
DESIGNS FOR CHIMNEYPieces. BY PIRANESI.

(See page 256.)



PANEL FROM A SARCOPHAGUS IN THE MUSEUM AT CONSTANTINOPLE.

(See page 256.)

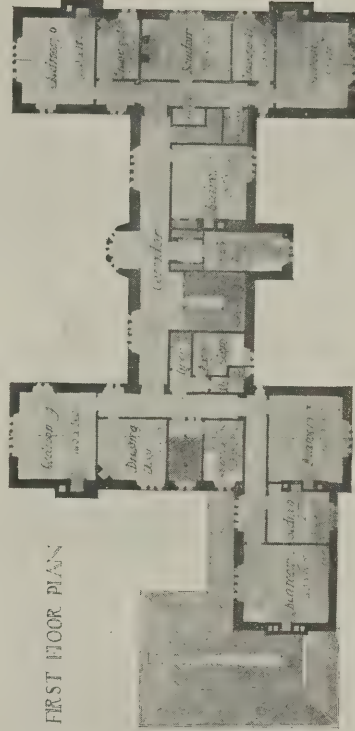


SOUTH ELEVATION

WEST ELEVATION



FIRST FLOOR PLAN



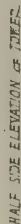
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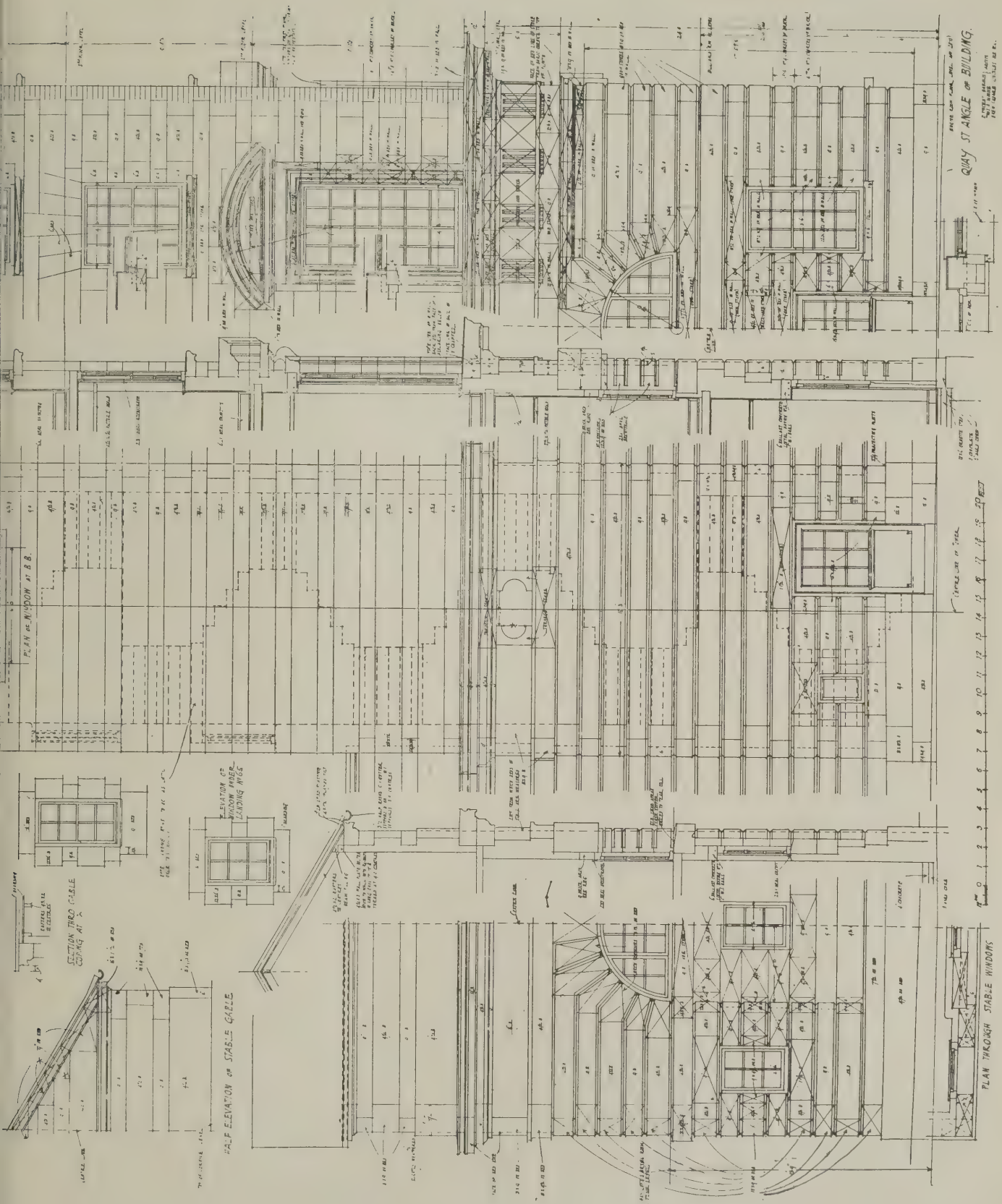
Ernest Newton, A.R.A., F.R.I.B.A., Architect.

HOUSE AT GORING-ON-THAMES.

ERNEST NEWTON, A.R.A., F.R.I.B.A., ARCHITECT.

(See page 256.)





WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS. XXXVIII.—DETAILS OF TOWER, NEW FIRE STATION, CARDIFF.

E. VINCENT HARRIS AND THOMAS A. MOODIE, A.A.R.I.B.A., ARCHITECTS.

(See page 254.)

NEWS ITEMS.

Change of Address.

Messrs. Richardson and Gill, A.R.I.B.A., have taken new offices at 41, Russell Square, W.C. The telephone number remains as heretofore—Gerrard 6751.

The Templars' Church at Dover.

The remains of the Church of the Knights Templars, on the Western Heights at Dover, are being restored by the Office of Works. This is one of the few round churches remaining in England.

Aberdeen Granite and American Tariffs.

A reduction of 25 to 50 per cent. in the tariff on granite imported in America is expected to give considerable impetus to the granite industry of Aberdeen, whose exports to the United States had been for some time declining. It is now confidently expected that within the next twelve months the exports will be doubled.

The Lyceum, Taunton.

The Lyceum, Taunton, which has just been opened as a picture palace, has a proscenium 30 ft. wide and 25 ft. high, and will accommodate 750 people. The architects are Messrs. Stone and Lloyd, of Taunton, and the general contractors Messrs. Spiller and Brown, of the same town.

"Alternately," and a Wooden Cost.

Huddersfield Borough Council Sanatorium Committee are reported as having "decided that the borough engineer be authorised to prepare the necessary plans, specifications, and quantities, and obtain tenders for the erection of the sanatorium *alternately in reinforced concrete and in brick*, and that the borough engineer submit his estimate of the cost if erected in wood." We are responsible for the italics.

The Pope's Sanatoria.

The Pope has ordered strict measures to be taken to fight the spread of consumption in the convents and seminaries at Rome. Henceforth all those who show signs of the disease will be sent to the new sanatorium which the Pope has just established. The Pope also recommends the bishops and congregations to build sanatoria for the treatment of members of the Church suffering from the disease.

The Refronting of Buckingham Palace.

The alterations which are being made to the front of Buckingham Palace as part of the memorial to Queen Victoria have been proceeding rapidly. The old stucco face is almost completely hidden by scaffolding surmounted by six huge cranes, and an army of men is working day and night in order to complete the contract within three months. Starting from the ground, nearly as much as 20 ft. has been covered with the new Portland stone facing, and higher up the work of cutting out the old stone projections is well advanced.

Another "Tallest Building in the World."

Plans for a building which will rise to a height of 901 ft., should the scheme of the projectors—the Pan-American States Association—be carried out, have been completed by Mr. F. H. Kimball, who is responsible already for many lofty buildings, including the thirty-three-storey City Investing building, the Empire building, Adams Express, of thirty-three storeys, and the Trinity "twins," each twenty storeys. The new building is estimated to cost about £1,800,000. Its site has not been definitely chosen.

A Link with Newton and Fanny Burney.

The house in Jermyn Street—No. 87—where Sir Isaac Newton lived for a great many years before he went to reside in St. Martin's Street, Leicester Square, is now in the hands of the housebreakers, and will shortly make room for the erection of more modern premises. It was occupied by the philosopher from 1662 to the date of his migration to Leicester Square, a short distance away. Among the later tenants of the place were Dr. Burney and his famous daughter—Madame D'Arblay—who dated from this house many of her published letters.

A New-Type School at Bradford.

A new school which has just been opened at Thornbury, near Bradford, applies the principle of the open-air school to city conditions. It is situated in the Leeds Old Road, and provides accommodation for 368 children. At each end of the building is an open-air teaching verandah; the south sides and ends of each are provided with movable glazed partitions. The open verandah permits of each classroom being effectively cross-ventilated, and also gives the advantage of better lighting than would have been obtained if a closed corridor had been used. Buildings and grounds, exclusive of site, were estimated to cost £5,610. The school was designed, and its erection supervised, by Mr. W. Williamson, city architect.

PROJECTED NEW WORKS.

Town Hall for Southend-on-Sea.

It has been resolved to build a town-hall for Southend-on-Sea at a cost of £19,000.

Lewisham Mill Bridge.

At a cost of £2,196, the old Lewisham Mill Bridge is to be reconstructed, and a new retaining wall to the mill pond built.

Bridgwater Hospital Extension.

Bridgwater Hospital is to be enlarged, at a cost of £5,000, to commemorate the centenary of the institution and as a memorial to King Edward VII.

New Hall for Whitley Bay.

A movement has been commenced by the vicar, the Rev. Edward Smith, and churchwardens of St. Paul's Church, Whitley, for the erection of Parish Hall at a cost of £2,500. A design has been prepared by Messrs. Marshall and Tweedy, of Newcastle.

Manchester's Huge Extension Scheme.

A scheme for the extension of the Manchester Municipal Offices, at a cost of about £600,000, has been prepared by the Town Hall Committee of the Manchester Corporation. It is not proposed to interfere in any way with the existing town-hall, which was opened in September, 1877, and cost £1,062,565. There is considerable opposition to the scheme mainly on the score of the expense.

Marylebone Police-court Disappears.

Marylebone Police-court is, by order of the Home Office, about to be pulled down and a new structure erected on the same site. The present building has been in use since 1875, but it has long been found inadequate. It is mainly with the object of providing a children's court that the building scheme is about to be undertaken.

Town-planning in South Birmingham.

The Town Clerk, on behalf of the Corporation, has advertised the fact that the Birmingham City Council intend to apply to the Local Government Board for authority to prepare a town-planning scheme in relation to certain land in South Birmingham. The land involved in the scheme embraces an area of about 8,400 acres and is situated on the south side of the city.

Sutton Trust Dwellings for Newcastle.

Plans have been submitted to Newcastle Town Improvement and Streets Committee for the erection, under the Sutton Trust, of tenement dwellings in the Barrack Square area. It will be remembered that the late Mr. Sutton, who was head of the firm of Sutton and Co., carriers, left property to the estimated value of £2,000,000 in charge of three trustees—Mr. C. T. Sutton, Mr. C. E. T. Lamb, and Mr. Watson—for the purpose of erecting dwellings in London and other populous places.

"Australia in London."

As far as possible, all the stonework, marble, and wood for use on the new offices of the Australian Commonwealth in the Strand, London, are being brought from the Antipodes, and it is expected that the last of the stone will be here by the end of November. Drawings have been sent to Melbourne, and Australian masons are preparing the Australian stone. Every block which is to be used in the exterior will come over here worked to a size and numbered ready to be put into position, so that the London masons will only have to fix it. It is a record in the way of buildings, and gives a very realistic interpretation of the familiar phrase "Australia in London."

Sheffield Town Hall Extension.

A Local Government Board inquiry was held yesterday by Mr. R. H. Bicknell, M.Inst.C.E., into the application of the Sheffield City Council for sanction to borrow £42,798 for the extension of the Town Hall, £3,200 for the purchase and laying out for purposes of public walks and pleasure grounds of Hutcliffe Wood, £400 for laying out Millhouses Park, £689 in respect of works of paving in Ilking Road, £5,468 for purposes of street improvement in Abbey Lane, Bole Hill Road, Derbyshire Lane, Fulwood Road, and Norton Lees Lane, and £1,281 in respect of the purchase of land adjoining Abbey Lane Cemetery. Altogether the City Council are asking to increase their borrowing powers by £53,886.

New Municipal Works.

The Local Government Board have recently held, on the respective dates indicated, inquiries into proposed expenditure by public bodies as follows:—Water supply.—Chirbury Rural District Council, £1,500; for Worthing, £1,500 (September 2nd); Bewdley Borough Council, £3,000 (September 3rd). Street improvements and public walks.—Hendon Urban District Council, £3,483; Eastbourne Borough Council, £2,638 (September 2nd); Sutton Urban District Council, £4,000 (September 5th). Sewerage, drainage, and sewage disposal.—Shardlow Rural District Council, £10,311, for Breaston and Draycott (September 5th). Various.—Stourbridge Rural District Council, retort-house machinery plant at gas works, £4,500 (September 14th); Birmingham Corporation, housing, no amount specified (September 8th); Egremont Urban District Council, ditto, £20,000 (September 9th).

MOTOR NOTES FOR BUILDERS AND CONTRACTORS.

*[Specially Contributed.]**The Commercial Car Driver and His Peculiarities.*

THE importance of the commercial car driver in the success or failure of any motor installation cannot be over-estimated, a fact not sufficiently realised by the average owner. We have, perhaps, as a reason, the old traditions, for years schooled into the mind of the business man, that the driver is more or less an unimportant factor; that he is merely a man to load and unload a wagon and drive a horse, that he can be replaced at any time without difficulty at small expense, and that there are hundreds of good men willing to take his place. This is doubtless largely true when horses constitute the delivery system, but when horses are replaced with delicate machines, and engines which have to be handled in an entirely different manner, the importance of the driver immediately takes a step forward, assumes a higher plane in the pyramid of the working forces of the company, and this is true even though the same man that formerly drove horses is now employed to drive the trucks. There is a vast difference between the part played by the horse driver and the part played by the truck driver in the delivery system, although it is difficult to bring the average owner to a realisation of this fact. With horses there were of necessity long waits: the horses required these, and the driver easily fell into the habit. With a commercial car these waits are no longer necessary, and in reality are a menace to the success of commercial car delivery.

The Cost of Delivery.

The difference between successful and unsuccessful delivery by motor-driven vehicles is usually associated in the mind of the owner with the cost of delivery. This is true in spite of the well-known fact that many a motor-truck installation is entirely successful and would not be dispensed with under any circumstances, in which the actual cost of delivering may perhaps be slightly higher than it was with horses. This is true of cars on account of the tremendous expansion of the business due to the use of trucks, increased radius of daily delivery, better satisfied customers, ability to connect for shipments, etc.

But usually the cost of delivery is the thing uppermost in the mind of the user, and, this being the case, the effect of different types of driver on the cost of delivery assumes an importance it did not have in horse delivery service. It did not matter materially just how well a driver controlled his horses—the difference between a good and an ordinary driver did not seriously affect the cost of delivery service. How different it is with motor-driven vehicles. The difference between a good driver and an ordinary one very often has meant the difference between a profit in the delivery department and a loss; in other words, the driver has within his power the making or spoiling of the efficiency of the entire delivery service, as far as the cost of operation is concerned. A slight carelessness may mean an accident which, in the case of a horse and wagon would mean but a few shillings, while with the truck it may mean £20 or £30. He may not oil the vehicle properly; with the wagon this is at most no great money damage, while with the truck it may mean an entire new power plant,

and that within a few hours after the parts have been neglected. Driving in the car tracks may perhaps strain the spokes of the wheels of the wagon, but it is not ruinous to expensive rubber tyres as is the case with the truck. So the comparison goes on ad infinitum, showing that the truck driver if he is an irresponsible devil-may-care sort of fellow can in a very short time ruin any profit which might possibly result from the use of commercial cars.

Horse-driver as Chauffeur.

This may be cited as a disadvantage of trucks, but with proper handling it is made an advantage. The average driver, when he arises from the horse-drawn vehicle to the position of chauffeur, with an expensive piece of machinery entrusted to his care, rises to the occasion. He becomes a better man, he wakes up and takes an interest in his vehicle, and in other ways almost immediately shows that he appreciates the responsibility vested in him. If he does not do this the wise owner fires him at once, because it is within his power in a very short time to do untold damage.

By questioning many users, the conclusion is forced upon the writer that the so-called trained chauffeur, especially the man who has at one time driven pleasure cars, is not the man to operate commercial cars. This man, as a rule, feels above the handling of tons of freight. They desire to drive, but nothing more, and even when persuaded to handle the loads they are out of their element and do not know how to pack a load properly, economically and safely. It takes years of experience to learn the art of stowing the load so that it will ride. For such reasons the ordinary chauffeur, as a rule, is not well fitted to operate trucks. He usually demands more money and does less work.

The Driver's Special Knowledge.

The business man hesitates to put on drivers who do not understand his particular business. Each line of delivery has innumerable peculiarities of its own; each class of goods requires a different experience for its handling. Drivers who have been in the employ of a firm for years are usually anxious to learn to operate motor vehicles, and their years of experience and knowledge of the business is an asset which cannot be gained in a short time. Learning to operate the motor truck can be acquired in a very short time, as long as the driver does nothing but drive. Of course, if he is required to care for the mechanism, then different training is necessary.

This leads us to the much-mooted question of how much of the care of the trucks should be placed in the hands of the driver. This, it seems to the writer, is a matter which is dependent largely upon the number of vehicles in service. For instance, if the installation consists of but one or two trucks, it is very unusual to hire a highly trained man to do nothing but look after the condition of the machines and make repairs and adjustments. It is usually found more economical to hire competent drivers at from 10s. to £1 a week more than is usually paid to the ordinary driver. These men are then held responsible for the oiling, adjustments, inspecting the vehicles, and making minor repairs. If, however, the installation is a large one, where there are

five or more vehicles, then it is economy on the part of the owners to have the highly trained specialist in charge of the service, a man who is paid at the very lowest £20 per month, and from that up to £35 a month, according to the size of the delivery service. Under these conditions the driver does nothing but drive and has the strictest instructions not to touch or tamper with any part of the mechanism. If he is stuck anywhere on the road he is to call up the emergency department, who will immediately go to his relief, but under no circumstances is he to attempt to make adjustments or repairs. In this way the machines are thoroughly inspected either at timed intervals, or intervals which represent definite mileage, and the trucks are kept in first-class condition and always ready for efficient service.

Repairs and Adjustments.

The conclusion may then be drawn that only where it is impossible from a financial point of view to have a specially trained man look after the vehicles should the drivers themselves make repairs and adjustments. Just as soon as the installation becomes large enough to warrant the special man it is economy to pay less to the drivers and put the difference into the salary of the delivery or garage superintendent, as he is usually called.

The Bonus System.

There is no doubt that the bonus system pays. The actual amount of money offered is usually insignificant as compared to the actual savings due to the correct care of the trucks. The cash rewards which are made near the holiday season are greatly appreciated by the men, if a series of credits or demerits are given, based on freedom from accidents, promptness in the morning, appearance of vehicles, attention to oiling and grease cups, or other duties which may be assigned. The relative standing of the drivers should be announced, posted, or handed to them, so that a friendly rivalry will ensue. If this feeling is not aroused the system is not working satisfactorily.

Sliding Scale of Wages.

The progressive or sliding scale of wages has sometimes been employed to great advantage, especially where there are many vehicles in use. Here the drivers start on, let us say, £2 5s. a week, and remain at this wage for a period of three or four months. During this time various inspections and records are made of their work. If these records come within specified limits, the driver is then placed on a £2 10s. a week schedule and remains upon this salary for another period. If at the end of this time his record and that of his vehicle come within the prescribed limit he is again raised to £3 a week, and this may continue to whatever the company determines as the maximum which they can afford to pay for the work. It is astonishing the rivalry which will be developed and the pride which will be shown by those who are able to remain on the high schedule, and the amount of money saved is largely in excess of the additional amount paid as wages to the drivers. There are numerous variations of the bonus system, the details of which can be worked out for individual cases. These are merely spoken of in the way of suggestion.

A YEAR'S HOUSING AND TOWN-PLANNING.

The Local Government Board issued last week the first part of their annual report for 1912-13 as a Blue-book, and the Housing Section is issued for the first time as a separate volume. The report cites opinions from medical officers of health in various parts of the country showing the great value of the systematic inspections which are now being made under the Act of 1909. In many districts which had hitherto been supposed to have sufficient houses for their inhabitants the need for additional accommodation has been brought to light.

In 1909 steps were taken in 458 districts to deal with obstructive buildings and houses unfit for habitation: in 1910 this was done in 474 districts; in 1911 in 850 districts; and in 1912 in 1,192 districts. Thus in 1912 action of this sort was being taken in 66 per cent. of the sanitary districts of England and Wales. In the year 1912 47,429 representations were made by medical officers of health as to houses being unfit for habitation. The corresponding number in 1909 was only 6,312. The amount of work thus done in 1912 far exceeds anything attempted in the same direction in any previous year. Between the end of March, 1910, and the same date in 1912, 20,459 of the 54,069 houses in respect of which representations were made and which were not dealt with by notice from the local authorities to repair have been made fit for habitation by their owners without the necessity for resorting to closing orders. During the year ended March 31, 1912, local authorities issued notices requiring repairs to be done to 43,781 houses in cases where, under the Act of 1909, an undertaking by the landlord was implied that he would, during the tenancy, keep the house in all respects reasonably fit for human habitation. Of these notices 31,289 were satisfactorily complied with by the landlords, whilst the remainder were for the most part dealt with by closing orders. During the year under review the Board authorised 69 local authorities to borrow £403,158 for the purpose of providing dwelling-houses. This sum represents the cost approximately of 279 acres of land, 1,880 dwellings or tenements, and incidental street works, draining, fencing, etc. £59,557 of the above amount was for the purchase of 40 acres of land and the erection of 331 houses by rural district councils. The rent proposed to be charged varied from 2s. to 10s. per week.

As to town-planning the report states that both landowners and local authorities are alive to the advantages which system is likely to secure in laying out land for building, and that town-planning will be a source of large ultimate saving to the community in many directions. So far the schemes presented to the Board have been chiefly concerned with laying out main routes of communication through and from the areas dealt with; with the provision of open spaces, with the limitation of the number of houses to be erected on a particular area; with the setting back of the building lines so as to secure abundant air space, and to enable roads to be widened hereafter at a minimum cost should circumstances render it necessary; with the restriction of factories and similar buildings to particular areas, and with the setting aside of particular sites for public purposes.

Up to the end of March, 1913, the Board had authorised the preparation or adop-

tion of 33 schemes by 27 local authorities, involving a total area of more than 50,000 acres or over 78 square miles. Four complete schemes have been submitted to the Board. Two were prepared by the corporation of Birmingham, one by the corporation of Rochdale, and the other by the urban district council of Ruislip-Northwood. In the Birmingham scheme no attempt was made to regulate or control to any great extent the architectural features of the buildings to be erected. The Ruislip-Northwood scheme (which relates to 5,906 acres), on the other hand, contains architectural provisions. Among the schemes the preparation of which was authorised by the Board in the year 1912-13 may be noted one of 1,044 acres in Finchley, one of 1,266 acres in the borough and rural district of Luton, one of 1,860 acres in the urban districts of Twickenham, Heston, and Isleworth, and one of 1,530 acres in Walthamstow. In addition 11 local authorities have applied for authority to prepare schemes involving some 20,000 acres, and the Board have information that some 111 others, many of them in the Greater London area, are considering the question of preparing town-planning schemes.

THE ARCHITECTURAL ASSOCIATION SCHOOL OF ARCHITECTURE.

The Architectural Association School of Architecture Curriculum for session 1913-1914 is now before us. The list of lecturers and instructors is as follows: Head Master, Robert Atkinson, A.R.I.B.A.; Lecturer on Theoretical and Practical Construction, C. E. Varndell, A.R.I.B.A.; Day School Masters, first and second years, Alan Potter; Assistant, W. M. Kelsey, A.R.C.A.; third year, Robert W. Cable, Ancien Elève de l'Ecole des Beaux-Arts; Evening School Master, James Buyers Scott. Other Lecturers, etc.: Greek and Roman Architecture, Theodore Fyfe, F.R.I.B.A.; Mediaeval Architecture, Aymer Vallance, M.A.; Renaissance Architecture, W. H. Ward, M.A., A.R.I.B.A.; Professional Practice, A. O. Collard, F.R.I.B.A. Life Class Instructor, E. Constable Alston; Water-Colour Class, H. F. Waring; Registrar, B. Scott Holmes, B.A.

For the day school the terms are as follows: Winter, September 29th, 1913, to December 19th, 1913; spring, January 12, 1914, to April 3, 1914; summer, April 27, 1914, to July 17, 1914. There is an entrance scholarship, value 48 guineas, and among the many prizes the most considerable are the following travelling studentships: The day school second year, £20; third year, £50; the Howard Colls, £15 15s.; and the A.A., £26 5s.; while the Jarvis Scholarship is of the value of £40.

The aim of the masters, it is stated, will be to direct the student's studies towards the knowledge of all that is accepted as the best in ancient and modern architecture, to assist the gradual development of his own skill, knowledge and character, and to prepare him to carry on his subsequent training to the full extent of his physical and mental capacity. The Council of the Royal Institute of British Architects accepts the drawings made during the first and second year in the day school in lieu of the testimonies of study for the Intermediate Examination, conditionally upon these being of sufficient merit, and upon the student obtaining the second year certificate of the Architectural Association signed by the President and Head Master.

Complete exemption can be obtained from the R.I.B.A. Intermediate Examination upon the same terms if the student satisfactorily passes through the three years' day course, or the four years' course consisting of two years' day school and two years' evening school.

The curriculum, giving full details of the courses and subjects, studentships, scholarships, and other prizes, can be had from 8, Tufton Street, Westminster.

THE ANCIENT MONUMENTS ACT.

Lord Beauchamp's Ancient Monuments Act, which was successfully steered through Parliament before the session closed, not only amends, but consolidates the existing law. It authorises the purchase of monuments either by the Commissioners of Works or by the council of any county or borough, or the Common Council of the City of London; but such a purchase can be carried out only by agreement with the owner. The gift or devise of a monument to the same bodies is also authorised. The alternative machinery of guardianship is then provided, as in the existing Acts, and the effect of guardianship is explained. By constituting the Commissioners of Works or the local authority guardians of his monument the owner does not divest himself of any right of property except that of destruction, active or passive; in other words, the guardians of the monument may restrain the owner from injuring it, and may, concurrently with the owner, do any work necessary to maintain and protect it.

An Ancient Monuments Board, representative of the three Historic Monument Commissions, the Societies of Antiquaries of London and Scotland, and other artistic bodies, is to be constituted by the Commissioner of Works, and upon their report that any monument is in danger of destruction, removal, or damage, and that the preservation of the monument is of national importance, the Commissioners may make a preservation order, placing the monument under their protection, and while such an order is in force the monument cannot be demolished, removed, added to, or altered without the consent of the Commissioners. Moreover, if, pending a preservation order, it appears likely that the monument will, from the neglect of the owner, fall into decay, the Commissioners may, with the consent of the Treasury, constitute themselves guardians, and may then execute preservative works. The Ancient Monuments Board are authorised to inspect any monument which they believe to be in danger; and in a case of urgency the Commissioners of Works may make a preservation order on their own initiative, without waiting for the Board's advice.

A preservation order is only a temporary measure. It has effect for eighteen months; after that time it ceases to operate, unless confirmed by Parliament. The Commissioners of Works may bring in a Bill to confirm the order, and this Bill may, if opposed by the owner, be referred to a Select Committee after the manner of a private Bill.

The Commissioners of Works are, after notice to the owners, to prepare and publish a list of monuments of national importance, and when a monument is included in this list the owner must, under a penalty give a month's notice to the Commissioners of any proposed work of demolition, removal, alteration, or addition.

CONCRETE AND STEEL SECTION.

(MONTHLY.)

SELF-SUPPORTING CONCRETE TUNNEL-LINING BLOCKS.

A permanent tunnel lining of reinforced concrete segmental blocks, which is intended to eliminate timbering and afford immediate protection against a falling roof, has been adopted for the Mount Royal tunnel of the Canadian Northern Railway. The lining has been designed by Mr. John F. O'Rourke, president of the O'Rourke Engineering Construction Company, of New York.

Substantially the same design can be modified to suit different types of tunnel cross-section, but for a circular roof arch it consists essentially of duplicate voussoirs of convenient dimensions, with plain faces for the intrados, extrados, and radial joints and with two or more shoulders or key projections on one vertical face adapted to engage corresponding recesses in the opposite vertical face.

Assembling the Blocks.

The first ring is erected with temporary fillers or wedges about 1 in. thick in the radial joints, and after it is assembled the voussoirs of the second, or any subsequent, ring can be assembled either from the skewbacks to the crown in the usual manner or in any succession that is found convenient, commencing at the ends, at the crown, or at any intermediate points. Since the longitudinal joints in any two adjacent rings are staggered, each voussoir overlaps two others in the adjacent ring and one of its projections engages a recess in each block in the next ring. As soon as it is assembled in place it becomes self-supporting and independent of all other voussoirs in the same ring, thus enabling the remaining segments of that ring to be erected independently in any order and be held securely in position without the use of false-work or temporary supports. When the arch ring is completed, pairs of folding wedges are driven in the radial joints, keying all the voussoirs together and developing the true arch action, which immediately provides strength to resist heavy external pressure or loads. Later, both the radial and the vertical joints are grouted, entirely completing the construction of the lining and making immediately available its ultimate strength without having involved the ex-

pense or obstruction occasioned by the presence of forms or the handling of wet concrete, and without delay for the concrete to set and acquire working strength.

The vertical faces of the voussoirs have fillets in the extrados, reducing the clearance so as to retain the grout and facilitate the waterproofing of the arch ring. Moulded holes in the centre of the intrados of each voussoir provide for connection to the radial arm of the erection traveller. This arm is provided with fingers, which enter the hole and are expanded to act like Lewis bolts and grip the voussoir securely so that it may be lifted and swung into any required position by the operation of the arm. The latter is also provided with a wrist joint, enabling it to be twisted as well as moved vertically, horizontally, and radially, and thus set the block with quickness and precision.

Adaptability of the Lining.

This lining is applicable to either earth or rock excavation, and under widely different conditions. The self-supporting properties of the voussoirs make it possible to erect segments of the ring at any time and to follow up the lining in accordance with various different methods of excavation. When the excavation is not completed for the arch ring voussoirs may be set for the portions completed and if necessary temporarily supported on shoring or timbers and removed as soon as the excavating for the arch is completed. The voussoirs may readily be made of very great strength to resist earth pressure or to afford protection from unsound rock, and can be wedged or packed on the exterior as soon as placed. As they form the complete and permanent lining the large strength developed for preliminary service involves no additional expense.

Lower and Upper Headings.

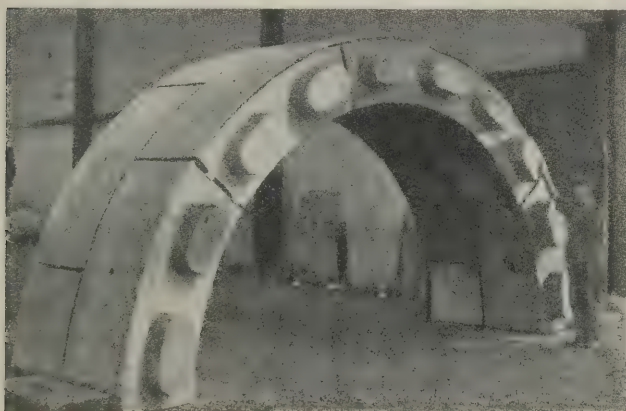
Where the pressure is very great or the roof is particularly dangerous, either in earth or in rock, the finished arch ring may be maintained very close to the heading by excavating with a system of lower and upper headings. By this method parallel lower headings are driven on each side of the tunnel, and side walls of concrete, moulded blocks or other satisfactory construction are built in them to carry the roof arch. A centre-top heading is also

driven a little in the rear of the bottom headings, and as fast as the comparatively small amount of excavation between it and the side heading is made the successive arch rings can be rapidly erected complete and put in service, finishing the lining close to the face of the top heading and providing a permanent roof under which the remainder of the excavation can be completed at leisure.

Details of Construction.

A semi-circular arch with an intrados 15 ft. 6 in. in diameter has been constructed, as shown in the accompanying illustrations, with voussoirs 2 ft. thick, weighing 3,750 lb. each. Each has on one vertical face two 12 by 24-in. oval projections 7¼ in. thick, and on the opposite face two corresponding recesses 6 in. deep. Each is reinforced by two sets of horizontal steel rods parallel to the tunnel axis, which are slightly convergent, so as to form groups that enclose the recess at one end and at the other end extend into the oval projections near the curved surfaces, thus providing positive strength to resist shearing stresses due to the weight of the block or to any tendency for displacement between adjacent assembled voussoirs. The blocks are made of 1:2:4 concrete, with 1½-in. gravel, and are cast in cast-iron moulds painted inside with powdered lead and kerosene oil, which gives them a very smooth, uniform finish. They are cast with the projections up, the concrete being poured through the collars for these projections, which are afterwards closed by heavy cast-iron plates, resembling boiler manhole covers, having a slight clearance with the collars and secured by 1½-in. screws. The latter are operated to compress the wet concrete and generally displace about 300 cu. in., allowing the water to flush out and overflow and securing a very dense block, which can be stripped and handled when twenty-four hours old.

The Mount Royal tunnel, in which, as previously mentioned, this type of lining will be used, is about 2½ miles long, 31 ft. wide and 21 ft. high, running chiefly through Trenton limestone and igneous rock, varying from soft to very hard, and a badly broken volcanic breccia that requires almost continuous masonry lining. Some of the limestone needs only a supporting centre wall.



SELF-SUPPORTING CONCRETE TUNNEL-LINING BLOCKS.

A REINFORCED CONCRETE FIRE STATION.

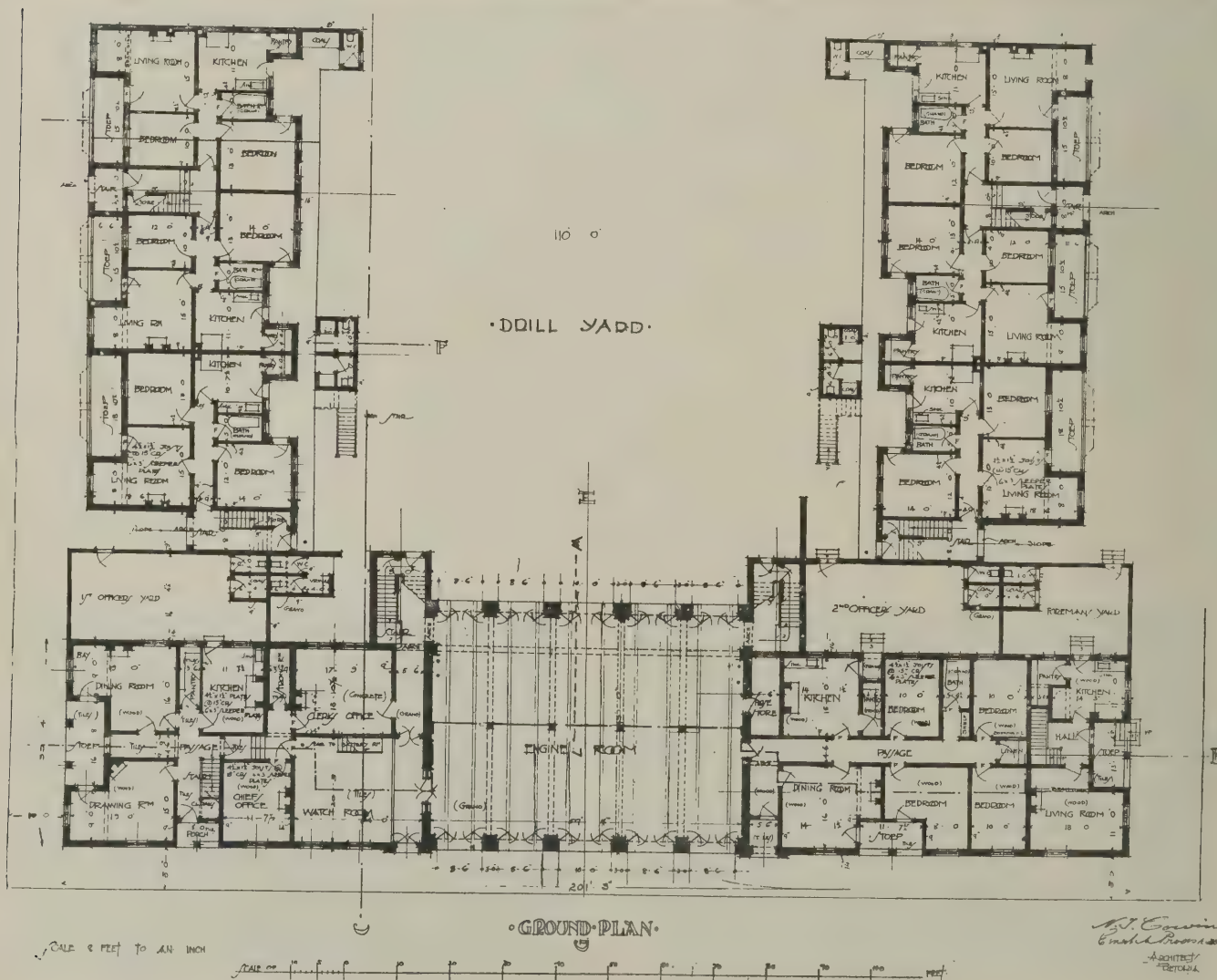
The new headquarters fire station, Pretoria, which was recently opened by the Mayoress of that town, was the subject of an open competition amongst South African architects last year. The buildings form three sides of a rectangle. The main administrative block, facing Koch Street, and the two wings, comprising

quarters for twelve married men, enclose the drill yard.

The main block contains the engine-room, with watch-room adjoining, chief and second officers' quarters, rooms for single men, drill-hall, and recreation-rooms. The drill-hall is placed immediately above the engine-room and has adjoining a large reading-room and billiard-room. Speedy access to the engine-room is provided by sliding poles from the single men's quarters and drill-hall. The

five pairs of doors to the engine-room are electrically controlled from the watch-room and can be opened either singly or collectively by the operator on duty.

The Kahn system of reinforced concrete has been adopted for floors and beams throughout, and all wood finishings to the floors have been dispensed with, the surface of the concrete being floated with cement and covered with cork linoleum. The doorways to engine and watch room, which form the central feature of the



NEW HEADQUARTERS FIRE STATION, PRETORIA.

façade, are executed in local granite, the doors being of teak. The panel of the municipal coat-of-arms in the pediment is in colour and executed in faience by the Leeds Fireclay Co. The watch-room is panelled in teak and the whole of the fittings are also in teak.

The elevation generally is simply treated in cement plaster, the roof covered with "ridge-and-furrow" Italian pattern tiles, which were manufactured in the Transvaal.

The total cost of the buildings was £22,260. The contractors were Messrs. Murdoch and Co. and the architects Messrs. Cowin and Powers, A.R.I.B.A., of Pretoria. The reinforced concrete designs were prepared by the Trussed Concrete Steel Co., Ltd., in conjunction with their Transvaal engineers, the General Fire Appliance Co., of Johannesburg.

TEST OF SAND FOR CONCRETE.

The testing of tension briquettes or compression blocks of concrete made from wet mortars having the same consistency as used in the work was advocated by Mr. W. B. Reinke in a paper read before the last annual meeting of the American Society for Testing Materials.

The procedure suggested by Mr. Reinke is as follows: The sand to be tested and Ottawa sand are first made into mortars of normal consistency, using preferably cement from the work. These mortars are then made into briquettes, the whole operation being in accordance with the standard methods for the making of sand briquettes when testing cement. The

amount of water necessary to make a mortar of normal consistency having been found, a new batch of sand and cement in the desired proportions is thoroughly mixed dry and placed in a cylinder that can be revolved, together with a number of flint pebbles, so that the proportion of cement, sand, and stone will approximate that desired in the actual work. To this mix is added enough water (generally about 50 per cent. more than needed for normal consistency) to make a mortar having work consistency. The cylinder is then closed and revolved for five minutes. The flint pebbles are picked out by hand and the mortar is made into briquettes. This test, Mr. Reinke pointed out, more closely approximates the conditions found in actual work, and the strengths obtained from briquettes made from such a mortar, though, as a rule, far below those obtained from a mortar of normal consistency, correspond to those that may be reasonably expected from the mortar if the same sand and cement are used in construction.

In most cases, using the same cement, more water will be needed to bring a natural sand to normal consistency than is necessary with Ottawa sand. This difference in the amount of water required is accounted for by the difference in granulometric grading, the work sand, as a rule, having the greater amount of fine material, and hence more surface to be covered and a larger percentage of voids. The more water used the greater will be the loss in strength at early periods. The nearer a natural sand approaches the ideal in physical and chemical composition, the less will be the loss in strength for each additional per cent. of water added.

The amount of water, therefore, re-

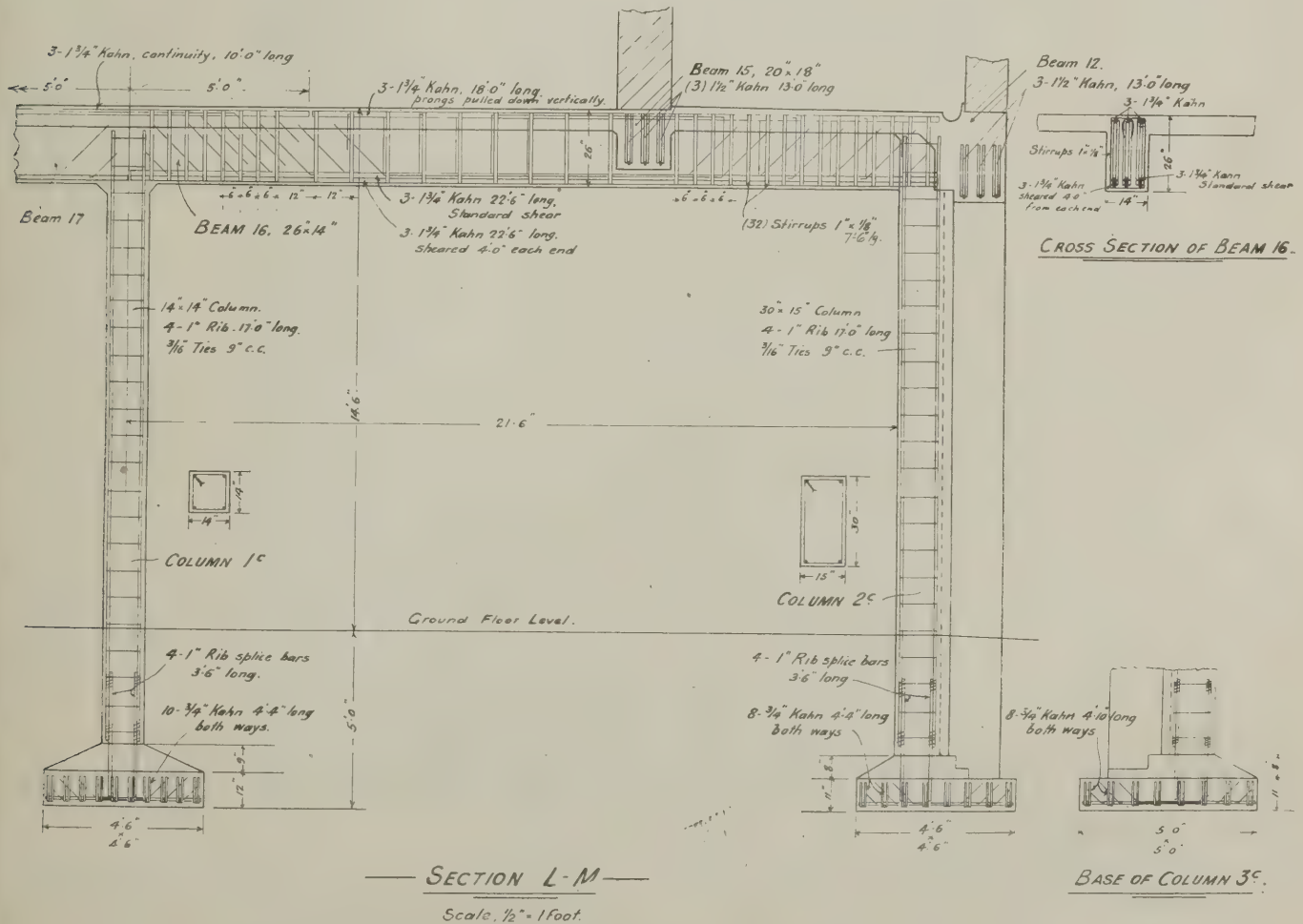
quired to bring a given sand to work consistently forms one of the best measures of the quality of sand.

In mixtures using 50 per cent. more water than required to produce normal consistency, Ottawa sand and good natural sands, Mr. Reinke finds, lose from 25 to 35 per cent. of their strength up to the twenty-eight-day period, while a poor sand may lose as much as 70 or 80 per cent. of the strength developed when made into mortars of normal consistency.

CONCRETE AND THE CHEAP COTTAGE.

In the course of a discussion of the cheap cottage problem in the "Daily News," Mr. Thomas Potter supports the opinion that concrete for building the walls of cottages in rural districts would materially increase the cost, so far as building a single cottage or pair of cottages applies, owing to the cost of the temporary wood moulds, or "forms" as they are called, in which the concrete is deposited in a soft condition. But, he adds, if there are others to erect, or buildings of any kind, then concrete should be cheaper than brick or stone in almost any locality; as the forms can be used over and over again.

There is no need to import special workmen. A capable and trustworthy carpenter foreman who has had experience in erecting concrete buildings is the only expert necessary. The better class of agricultural labourers do the rest, and are better than town labourers, who have preconceived notions of the fitness of things. They take an interest in the work—an



extra sixpence a day over their usual two shillings or two-and-sixpence has possibly something to do with this.

But there are other advantages in employing these men. A knowledge of concrete construction and the many purposes for which it is adapted in rural districts (they soon pick up this after some months' practice) is extremely useful to their employers when they resume their usual avocations.

As an instance, a bridge over a shallow stream, about 60 ft. in length, was built by a village carpenter and village labourers in 1879; and tractions engines frequently pass over it. The only supervision was an occasional visit while it was in hand.

Replying to Mr. Potter and other correspondents, Mr. Robert Green, of Sheringham, declares that they are a little at sea as to the cost of erecting cottages of concrete versus bricks in his part of the country, namely, the county of Norfolk. The difference having been gone into from all standpoints by the Council of this district, it has been found to be so small as not to be held as a consideration.

COMPETITIONS.

Manchester Royal Exchange.

The board of directors of Manchester Royal Exchange are inviting designs from architects in the United Kingdom for the proposed enlargement of the Exchange buildings by means of additions and alterations. They have sent special invitations to not more than twelve architects of repute to take part in this competition and have appointed as assessor Mr. James S. Gibson, of Old Bond Street, London, to whom all questions relating to the competition are to be addressed. The designs are to be sent to Mr. Allen, the Master of the Exchange, not later than noon on January 2nd, 1914.

The total cost of the new buildings should not exceed £150,000 and that of the alterations £25,000. The elevations of the existing buildings have been supplied so that competitors may design the new buildings in harmony therewith, but this does not mean a repetition of the present design. The design of the whole structure (new and old) when complete must be an architectural composition of dignity, breadth, and artistic merit, and having the effect of one building. It is competent for competitors to redesign the whole or any part of the elevations to Cross Street and Exchange Street of the existing buildings, provided the limits of cost are not exceeded. In all designs competitors should bear in mind the great desirability of providing ample windows to light the offices and other parts of the buildings, as in this respect the existing elevations are considered inadequate.

The following requirements are essential and must be adhered to: A covered passage, with gates, for pedestrian traffic, not less than 18 ft. wide, shall be provided on the ground level beneath the main floor of the Royal Exchange on or near the northern boundary of the land coloured red on the plans, so as to provide access for the public between Cross Street and St. Ann's Square. The headway of the passage shall be not less than 12 ft. throughout its length. The whole of the existing portico, steps, and other architectural features now projecting beyond the building line shall be removed and the space thrown into Cross Street and a new architectural frontage designed within the building line.

It is not desired to interfere with any of the shops and their basements on the Market Street frontage, and with as few as possible of the shops and basements on the Exchange Street frontage. Bank Street as now existing will be closed, but a passage will be substituted for it on the northern side of Bank Street, and the shops now situated there will be interfered with as little as possible. As many shops and basements as possible are to be provided on the whole length of the Cross Street frontage, on the south frontage, on the Exchange Street and St. Ann's Square frontage, and on both sides of the covered passage-way referred to. The two existing entrances to the Exchange and offices at the corners in Market Street are to be retained. A new principal entrance to the Exchange is to be provided on the Exchange Street and St. Ann's Square frontage.

In designing the buildings competitors must bear in mind the desirability of interfering as little as possible with the comfort of members using the existing buildings, which must continue in use until the whole or part of the new buildings can be available for them, after which all alterations on the existing buildings would be executed.

Schedule of Accommodation Required.

Sub-Basement Plan.

Sufficient heating and ventilating plant to heat the old buildings (new and old), providing heating to each office and hot water supply to all lavatories. Any sub-basement provided by competitors is to be designed with large spaces and to be accessible by goods lifts from the cartway entrance.

Basement Plan.

Basements for shops must be provided, each having w.c. and lavatory. The remainder of the basement (if not required for a restaurant) to be designed in large spaces of good height, suitable for exhibition purposes, and accessible by goods lift from cartway entrance.

Ground-Floor Plan.

Ground-floor lock-up shops to be provided, of moderate size, but designed so as to be easily enlarged by combination. The restaurant, with all its appurtenances, now under the existing buildings, to be redesigned of equal or larger size on the new portion of the site. The restaurant entrances should not interfere any more than is practicable with the shop accommodation. The space obtained by the removal of the present restaurant to be redesigned to provide larger shops and large open space. A café to be provided of moderate size. Entrances to offices and exchange, with electric passenger lifts.

Cartway entrance 12 ft. wide opposite Half Moon Street, giving access to the present cartway entrance in Bank Street, and provided with large lifts for goods to be taken to basement and sub-basement.

First Floor.

Exchange, having a floor area of 2,250 superficial yards and as free from columns or supports as possible, lighted principally from the roof and connected to the present Exchange Hall so as to be used in connection therewith, and on the same level. Walls must be arranged so that large telegraphic market boards can be fitted similar to those in the present Exchange Hall. (1) Board Room, 600 feet super.; (2) Master's Room, 500 feet super.; (3) Clerks' Office, 600 feet super.; 2 and 3 conjoining, and, if possible, 1, 2, and 3 conjoining.

Gallery Floor—(Second Floor).

If the whole or any part of the mem-

bers' reading room on the gallery floor level is displaced in making the connection between the present and the new Exchange Halls, equal accommodation must be provided by competitors. Adjacent to the members' reading room should be provided a large open air space or roof garden suitable for members smoking, and lavatory and w.c. accommodation for members. Remainder of this floor to be devoted to offices for letting.

All Other Upper Floors.

As many upper floors to be provided as possible, all devoted to offices for letting, and the plans to show the remodelling or redesigning of the existing offices on these floors. Perfect intercommunication on all office floors between new and old buildings is very important. Plans are to be obtained on deposit of £2 2s.

INTERNATIONAL COMMISSION ON ILLUMINATION.

At the fourth meeting of the International Photometrical Commission, which has just been held in Berlin, there were present forty-five delegates representing institutions connected with gas and electric lighting and illumination in England, France, Germany, Italy, Austria, Switzerland, Belgium, Holland, and the United States of America. In his opening address the President, M. Vautier, explained that the commission had been founded by the International Congress of Gas Industries which took place in Paris in connection with the exhibition of 1900, its object being to study the methods to be employed in the photometry of incandescent gas lights and to organise investigations calculated to lead to a better knowledge of using gas to the best advantage. He gave the reasons for now enlarging its scope and constituting a new International Commission on Illumination. After four days' careful consideration of the proposed statutes the Commission was duly declared constituted. Its general object is to promote the study of all questions relating to the science and art of illumination and to establish by appropriate means international agreement on all matters connected with illuminating engineering. Each country is to have only one vote and to contribute equally to the expenses of the central office. All countries interested in the subject of illumination have now an opportunity of forming national lighting committees and of sending delegates to participate in the deliberations of the commission. M. Vautier has been elected president of this International Commission, and Mr. C. C. Paterson, of the National Physical Laboratory, hon. secretary. London will thus become the official centre from which the business of the Commission is transacted. The next session is to be held in Paris in 1916, and by that time it is hoped that a good deal of useful work will have been accomplished and will be presented by the various committees, which are to be appointed shortly.

Steel Wall Ties.

P. AND S. (Cardiff) write: "Kindly give the name of the makers of the 'Simplex' wall ties."

—"Simplex" steel wall ties may be obtained from Messrs. Pryce and Palmer, 40 and 41, Upper Thames-street, London, E.C. Steel ties of a good pattern are also made by Messrs. The Warrington Bond Iron Syndicate, Ltd., Brewery Street, Ardwick, Manchester. G.

THE
ARCHITECTS' & BUILDERS'
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PLASTER MODEL OF "SLEEP." CROSLAND McCLURE, SCULPTOR.



CASERNE DES CÉLESTINS, BOULEVARD DU PALAIS, PARIS: MAIN ENTRANCE.
RENÉ-JACQUES HERMANT, ARCHITECT.

(See page 284.)

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CAXTON HOUSE, WESTMINSTER.

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Science and Beauty.

SIR OLIVER LODGE, in his presidential address to the British Association, at Birmingham, glanced at Beauty, and in effect confessed that he knew very little about it: as, indeed, was self-evident. Perhaps, indeed, he made out a profounder depth of ignorance than the plummet would record in a scientific effort towards exact ascertainment, because he was anxious to convey an impression that there are many things that elude our finite powers of apprehension, and Beauty was used as a familiar illustration of that proposition. Sir Oliver was out for what "The Times" has dubbed "The New Agnosticism." He wanted to emphasise the idea that what we know is infinitesimal in comparison with what we do not know, and he treated Beauty in particular in the same way as he treated impalpable things in general—that is to say, he darkened counsel about it, in order to make it subservient to his main argument. He was attempting a homœopathic remedy for Agnosticism, as who should say, You know nothing about Beauty, yet you are in not the least doubt that it exists. *Ergo, a fortiori*—But fortunately we need not pursue this train of thought.

If it had suited his purpose, Sir Oliver could easily have proved the contrary thesis—that, so far from knowing nothing about Beauty, we have at least a useful working knowledge of some of its more familiar phenomena. It is here where the Intellectuals and the Emotionalists—a plague take both their houses!—join issue as to whether or not architecture can be taught; both missing the *via media* when the one pretends that it is wholly scholastic, and the other that it is wholly intuitional, plus a little skill in craftsmanship.

Innumerable disquisitions on Beauty do not carry us very far forward. They serve little other purpose than to provide us with a considerable mass of more or less agreeable reading; for anyone who shall have read Burke on the Sublime and Beautiful, Reynolds's Discourses (in which it is said that Burke had a hand), Hazlitt's contradictions of Reynolds, Winckelmann's and Goethe's essays, Lessing's "Laocoon," Emerson's essays, Ruskin's magnificent futilities, and all the rest of it, down to Mr. Clay's chemico-biological analysis of the constituents of Beauty's body, will be lucky if he escape the common experience of confusion worse confounded. These things should be read, if at all, when one is young and eager; but their net effect is that of the pundits on old Omar:—

"Myself when young did eagerly frequent
Doctor and Saint, and heard great Argument
About it and about: but evermore
Came out by the same Door as in I went."

Rhetoric and argumentation, nevertheless, are not to be swept aside as being the wholly idle and sublimely futile maunderings of imaginative minds. They may, indeed, attune the practical mind to nobler issues; and they are often distinctly provocative of more practical counsels, and we suspect that many an excellent treatise on architecture has been inspired by the strong desire to bring it down from the giddy

heights to which Ruskin and his disciples had enraptured it. Mr. Blomfield's robust virility, for example, reads like a reaction against Ruskin's vapid rhapsodies, and Mr. John Belcher's "Essentials in Architecture," which may possibly have owed its inception to the influence of the "Seven Lamps," carries on, in a manner more in accordance with the present-day mental outlook, the excellent service of popularising architecture which Ruskin unquestionably performed, although he did it with a magniloquence that, while it may still pass for such splendour as is possible to prose poetry, is out of touch with current habits of thought and methods of expression.

More typical of the mood of the moment is the high seriousness with which the public addicts itself to "short studies in great subjects." For example, here, red-hot from the press, is Mr. C. W. Valentine's "Introduction to the Experimental Psychology of Beauty," which Messrs. T. C. and E. C. Jack have doubtless good grounds for including in their "People's Books," which are sold at sixpence each. Sixpenny books, or even those sold at a shilling, have at least the beautiful quality of brevity, their authors being constrained to directness and simplicity of statement. This little book on Beauty is further typical of the times in the spirit and method of its approach to the subject of Beauty. It represents a systematic attempt, not to surprise her happy secret, but to ascertain as much of it as systematic scientific experiment may reveal; and the attempt is the more respectable because the author realises that he is beset by other limitations besides those of space. With becoming modesty, he acknowledges that "the psychologist can hardly hope to instruct an artist of real power how better to do his work, though the artist may be led to understand more fully the reasons *why* certain things which he has done 'instinctively,' as we say, were good things to do, and why things he avoided would have spoilt the beauty of his work and the pleasure of those who saw it."

Mr. Valentine devotes two chapters to the beauty of colour, one to the beauty of form, and another to balance and symmetry, and in each of these the architect will find, *passim*, matters that may make him take further thought as to his employment of the principles that must here become somewhat more clear to him. It may be news to him that "the pleasingness or otherwise" of various colour combinations may depend on compensation of character or contradiction of character. For example, a sad brown might be enlivened by combination with a cheerful yellow, while a strong egotistical purple overbears completely a simpering mild blue. A subtle beauty, it appears, is derivable from a blending of this æsthetic character of the colours with their own characters and temperaments. In the chapter on beauty of form, and in that on balance and symmetry, there are several observations that have a direct reference to architecture. In particular there is a short discussion of the investigations of the German psychologist Lipps into the emotional effects of line. He noted, even as Ruskin had done before him, a

tendency of the human imagination to invest a line with active power. Thus the vertical line seems to strive upwards; the curve bends itself, the oblong upended on one of its shorter sides "holds itself in, and so gets power to stand up," while the similar rectangle with its longer sides running horizontally "stretches itself out or lets itself go." It is the difference between Gothic and Classic.

A minor point is interesting to those who take part in the perennial thick or thin line controversy. Mr. Valentine finds by experiment that "most, but not all," prefer the broader lines to the narrower; but that the breadth may easily become displeasing by increasing it beyond a certain degree of thickness. Quite a minor point, this, but strongly suggestive of a consensus of preference that no doubt extends to more complicated subjects.

There are, of course, those who will strongly resent this intrusion of science or pseudo-science into the domain of art; even as they resented the "Grammar of Ornament" of the ingenious Owen Jones, or the harmless necessary measurements of Stuart and Revett and Penrose. But these extremists—the "let-the-Beauty-of-it-sink-into-your-soul" philosophers—are not in the vanward of the movement. To-day we analyse in order the better to synthesise, and the sixpenny manual on the psychology of Beauty, though comparatively unimportant in itself, is a straw that shows which way the current is setting. Even Sir Oliver Lodge confessed: "I am one of those who think that the methods of science are not so limited in their scope as has been thought; that they can be applied much more widely, and that the psychic region can be studied and brought under law too." He meant, it is true, "spookic" rather than psychic, but his idea will admit of a larger application; and, incidentally, encourages the conviction that the more scientific study of architecture is by no means inimical to art, but supplies it with fertilising force.

J.

"A Huge and Painful Monument."

AS if there had not been already sufficient fuss over the projected new Government buildings that are to occupy the site of the gaol on Calton Hill, Edinburgh, Lord Rosebery has raised a new issue. It will be remembered that when the project was first mooted, strong objection was, rightly enough, raised in Parliament against foisting on Edinburgh a building to be designed in London by the Government architectural department, and that, in the upshot, the Government promised to institute a competition. Now, somewhat late in the day, Lord Rosebery is protesting vigorously against the whole scheme. He says that there are in Edinburgh many empty houses in which the various Government boards and their clerical staffs could be accommodated, instead of spending a huge sum in barracks for them on the Calton Hill. He fears that the new buildings will not be "an adequate substitute for the present picturesque castellated structure," and he asks, "Is it judicious to erect on the most conspicuous site in the city a huge and painful monument of the new bureaucracy?" We do not share his lordship's views as to the housing of Government officials, nor his admiration of Calton Gaol, nor his apprehensions of a "painful monument." Calton Hill has, on or near it, a quite respectable array of buildings of Classical design; the harmony, it is true, breaking off into a Dutch medley when one catches sight of the Nelson memorial, to which Lord Rosebery's designation "a huge and painful monument" could be applied without our protest. But more discordant still is the "picturesque" castellated gaol, and one had not anticipated that a single voice would be raised against the removal of so ugly and sinister a structure. Edinburgh will be well rid of it and its squalid associations; and there should be no difficulty in substituting for it a dignified building whose Classical design should be no disgrace to "the Modern Athens."

Inflexible By-laws.

TO know what to wink at is a gracious gift which seems to have been generally denied to the administrators of by-laws, by whom the letter that killeth is infinitely preferred to the spirit that quickeneth. For example, to cite an actual case, you submit plans of a garage, in which the roof is shown with ordinary eaves troughing. In building, you find that it is desirable to let the eaves overhang to the extent of eight or nine inches. Common sense suggests that you need not scruple to effect this slight deviation from the plans; but common sense and the corporation may possibly represent rival schools of thought. Whether or not this is so, the building inspector is at any rate in duty bound to report the deviation. Whether the corporation is then bound to drag you before the courts is another question, which, in the North, has been doubly answered in the affirmative—first by the corporation, which felt bound to prosecute, and secondly by the Bench, who so far justified the action as to postpone their decision for a month in order to give the defendant time to comply with the by-laws. That is to say, the defendant is compelled to destroy an architectural embellishment, and thus to ruin the appearance of his building, in order to satisfy a purposeless demand for strict adherence to the deposited plans. In resolving to prosecute, the corporation were actuated by the common idea that the letter of the law must in all cases be strictly and punctiliously fulfilled, even when its fulfilment will quite obviously do more harm than good. We were going to say that corporations should be invested with fuller discretionary powers; but the case in point does not inspire confidence that such powers would be exercised with any degree of reasonable discrimination; for, as far as we understand the case, there was here no actual infringement of any of the by-laws, save the one which necessarily provides that there shall be no deviation from plans which the authority have passed. Deviation appears to have been the sole offence; and apparently neither the corporation nor the Bench has any power to condone a purely technical breach that, so far from being in any way harmful, is positively advantageous in its effect. The case is a rather sardonic commentary on the fine saying that "the law is sublimated common sense." Of course there were ways and means of avoiding the trouble; but if these had been adopted an excellent opportunity of revealing a characteristic weakness of the incidence of by-law administration would have been missed.

The London Building Trade Troubles.

LAST Saturday the painters agreed, by a vote of three to one, to accept the terms which, a fortnight ago, they had rejected by twenty to one: diminishing resources, and the rapid waning of the busy season, having apparently subdued their ardour. This submission does not entirely end the trouble. It will be remembered that there are certain complications arising from a dual control of the trade. It is claimed by the London Master Builders' Association that they, as compared with the Master Decorators' Association, employ by far the larger number of painters; and whereas the latter have offered the men a penny more an hour, with a code of working rules, the former have offered only a halfpenny, and require further discussion as to a code of rules. To-day the master builders meet the United Builders' Labourers' Union, to discuss the men's demands of a penny an hour increase and a code of working rules; and the labourers are fortifying their claims with threats that in the event of their striking the skilled labourers would come out in sympathy. Whether or not the skilled workers are willing to do this we trust will not be put to the test. They have, at all events, no reason for dissatisfaction with their own conditions.

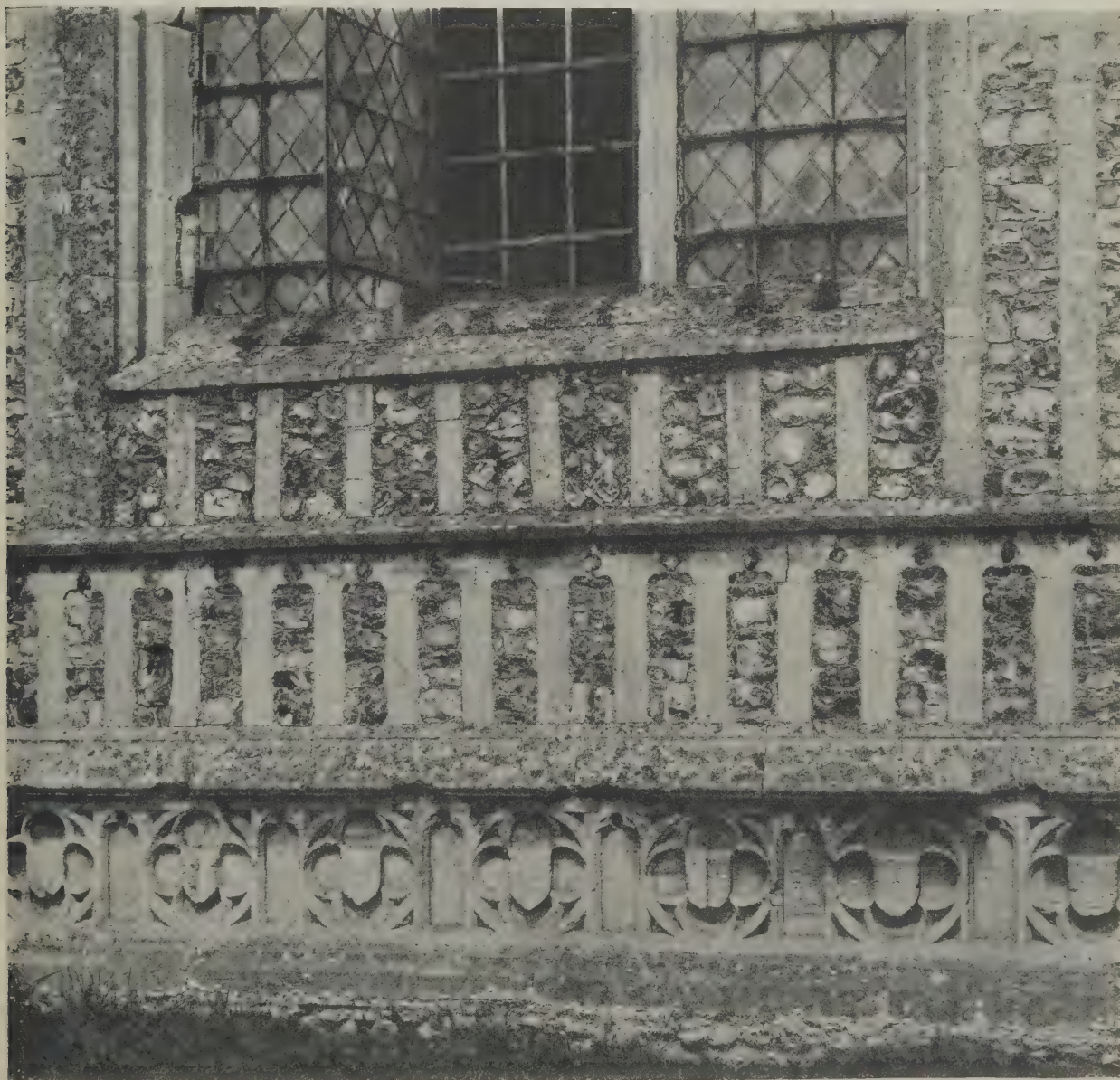
FLINT AND STONE PANELLED DETAIL.

ALTHOUGH, in all places where a chalky subsoil yielded an abundance of flint, the use of this material in building followed as a matter of course in the times when transit was difficult and costly, yet it was only in the eastern counties that a typical flint manner was developed. Rubbed walls of flint, either undressed or split, with stone dressings, are common enough in Kent and Sussex, where, occasionally, as in the towers of Steyning and St. Clement, Hastings, one gets, indeed, some small checkerwork in flint and stone; while Buckinghamshire and the adjoining counties show some very pleasing work of flint and chalk in checker patterns, such as is, in fact, of sporadic occurrence all over the country, and persistent through the early Renaissance. But the characteristic flint-and-stone panelled detail of Norfolk and Suffolk is peculiar to those counties.

It would be a matter of considerable interest to trace the rise of this peculiar and distinctive treatment (by some called "flush-work"), of which the remaining examples are entirely of the Perpendicular period, and somewhat late in the style, earlier flintwork in East Anglia being similar to the more ordinary treatment

usual in other counties. The later work exhibits a marvellous degree of skill and accuracy, the faces of the flints being knapped to an almost perfect plane surface, and in some cases (as at the Old Bridewell, Norwich) truly squared as well. This superlative accuracy of workmanship in an intractable material is well shown in the charming south porch of Kersey, Suffolk—an early example, as flintwork goes. The porch-front is a stone structure in the main, many of the smaller patterns of flint being inserted as an inlay in shallow sinkings in the surface of the stone, as may be seen in the (extremely few) instances in which the flints have fallen out. Some of the details of this porch partake almost of the character of the mid-fourteenth century, and the porch spandrels carved with fishes and seaweed in extremely delicate relief are delightful, as are the characteristically Suffolk "crowned lion" label stops; but the Perpendicular style in Suffolk is anything rather than the stark and stiff bogey conjured up by the generalising text-books. A curious feature (invisible in the photograph) is the occurrence of several merely incised foiled patterns on the stonework.

The split flints vary in tint from blue-black to rich yellow, and in some cases, as at North Walsham, they



DETAIL OF LADY CHAPEL, LONG MELFORD, SUFFOLK.

are carefully arranged in zones of different colour. At Kersey there is no ordered setting on any scheme of this kind, though black flints alone are used for the quatrefoiled inlay above the second base-mould. In the rest of the work, black, grey, orange, and all intermediate shades are mingled at random, and, with the stonework, which has weathered to a silvery grey, produce a beautiful effect of sparkle when illuminated by sunlight.

The most usual positions for the display of flint panelling and inlay are the south porch and west tower—it is but rarely that a complete church is uniformly covered with this enrichment. Such examples do exist, however, notably Long Melford and Stratford St. Mary, in both of which cases shields, monograms, and badges are displayed in stone on flint, or *vice versa*.

The work at Long Melford appears to be actual panel construction, and extends over every foot of that extremely large church, with the exception of the buttresses; at Stratford the buttresses are panelled as well. At Lavenham the use is more sparing: here the aisle walls, porch, and parapets are faced entirely with stone, flint appearing in the walls of the fourteenth-century chancel (as rubble), the Spring Chapel, clerestory spandrels, and west tower. The last-named is nobly treated, black flint being used in mass for the walling, with square angle turrets of panelled ashlar, and deep voussoirs above the label-moulds of all openings, alternately flint and stone. The introduction of the mullet or five-pointed star of the de Veres at several points of the walling lends interest to the surfaces.

Some doubt may be felt as to how far these flint-



SOUTH PORCH, KERSEY CHURCH, SUFFOLK.

panelled buildings possessed their present charm when first erected. It is difficult to imagine such fine towers as Lavenham, Southwold, Walberwick, Wymondham, or Holme ever looking other than noble; but though the modern west tower erected at Long Melford by the late Mr. G. F. Bodley is respectable after its kind, its effect is hard and unsympathetic, and all modern dressed flintwork seems of necessity to show this harshness.

MR. R. ANNING BELL ON BRITISH SCULPTURE.

SIR ISIDORE SPIELMANN, Director for Art of the Exhibitions Branch of the Board of Trade, has sent us a copy of the catalogue of the British Arts and Crafts Section at the Ghent International Exhibition. As this is the first occasion that an exhibition of British arts and crafts has been organised by the Exhibitions Branch of the Board of Trade to represent British Art at an International Exhibition, Sir Isidore Spielmann has thought it advisable to include in the volume a series of articles on the development and present position of the Arts and Crafts Movement of this country.

Commendatore Walter Crane has written a Foreword, in which he traces the growth of British arts and crafts as a whole, and describes the scheme and scope of the present exhibit, and has also contributed an article on Book Illustration and Decoration. Mr. R. Anning Bell has written articles on British Sculpture and on Mural Decoration. Mr. Emery Walker has written on Printing; Mr. Douglas Cockerell on Book-binding; and Miss May Morris on Embroidery. The catalogue also contains articles on Stained Glass, by Mr. Christopher Whall; Pottery, by Mr. Alfred H. Powell; Furniture, by Mr. W. A. S. Benson; Metal Work and Jewellery, by Mr. R. L. B. Rathbone; Textiles, by Mr. J. H. Dearle; and Lace, by Mr. Alan S. Cole. From Mr. Anning Bell's admirable article on British Sculpture we make the following extracts:—

The dignified structural arts of Sculpture and Decorative Painting are, Mr. Anning Bell writes, unfortunately those in which Great Britain can show least accomplishment in modern times. For various reasons and until quite lately both attention and patronage have been attracted in other directions, and in decorative painting patronage is still largely to seek. That neglect went on for so long that everybody, even artists themselves, began to assume that such work was foreign to the genius of our nation; forgetting the grand mediæval monumental work which at one time covered England at least from end to end, and of which just enough is left to make us realise the greatness of the artists of those days and how deplorable is our loss. Personally, I believe that the desire for cosiness, which since the spacious ages has more and more characterised English life, is largely to blame. Cosiness, with all its attractions to our fallen natures, it will be admitted is incompatible with monumental dignity. We have produced excellent tea-table equipages but few triumphal arches.

British sculpture suffered a long decline from the great Gothic centuries to the middle years of Queen Victoria. There were interesting episodes in the decline, but, in spite of much that is characteristic and good, I think it may safely be said that Renaissance sculpture in England never reached the level of the Gothic, and it ended in a dreary morass uninspired by Nature and but feebly galvanised by the mawkish stimulus of debased Classic art. Then a great man rose in England, a great sculptor, painter, and designer, a great draughtsman and scholarly artist. Time can only decide, but many already believe that in Alfred Stevens we had the greatest artistic personality which our race has yet produced. One of the fellowship of

the Masters, his work has that elevation of character and massive quality which distinguishes the greatest. His Wellington memorial in St. Paul's and his sketches and models for other monuments and architectural decorations and enrichments created the greatest enthusiasm among the young sculptor students of the early 'eighties. His use of architectural forms in combination with sculpture, his attention to decorative accessories, and the fertility of his invention of such details astonished and delighted the ardent young minds which had been starved by the meagre fare which the official sculpture of the period alone provided. About this time also other things were troubling the waters. Owing to the political adventurers of France, several distinguished French sculptors had come to England and begun to teach. An exceptionally good group of students gathered round an excellent master at the Lambeth School of Art, and increased facilities for study were provided. A desire for an increased fellowship and knowledge of each other's work and thoughts inspired a group of young architects, designers, and sculptors influenced by Norman Shaw and Morris to found the Art Workers' Guild—a private professional society for spreading knowledge and appreciation of the Arts and Crafts by encouraging discussion of their work and personal knowledge of each other among its members. The value of this society has been immense in destroying the feelings of superciliousness or inferiority which formerly separated the workers in the different arts, and its influence, though little realised by the public, has been very great. The London Arts and Crafts Society was founded soon after, largely from members of this Guild. The result of all this was that sculptors threw aside their aloofness and began to realise, and realise with joy, that their efforts were not necessarily confined to an unrelated statue or bust, but that the range of architectural decoration was properly their work, and that it would provide for many temperaments a scope for original expression which the older limitations could not afford. Minor forms of decoration also attracted their attention; various forms of metal work, jewellery, furniture, and wood-carving were attacked. The tremendous energy and marvellous output of Alfred Gilbert in some of these directions attracted an enthusiasm second only to that for Alfred Stevens. His influence can be traced in every direction, and the stimulus he lent to the movement counted for very much and counts still.

Thus sculpture in England began to hold up its head, and the sculptors to claim their share of the sunshine. To some extent they have been successful. Men of distinction are now constantly employed in the decoration of public buildings, and their pupils and assistants are therefore receiving a training such as would have been unattainable in a former generation. Much, however, has still to be learnt before we arrive at a truly monumental school. But whatever may be thought as to the direction in which English sculpture has been drifting, there can be no doubt whatever as to the immense technical improvement in the work produced in Great Britain during the last thirty years. Our young sculptors now find at home as thorough and various a training as can be obtained in any part of the world. A nation which, in spite of the constant communication of modern cosmopolitan life, still retains a marked individuality of its own, in painting, architecture, and the applied arts, must have qualities which will develop an individuality of its own also in sculpture, given time for the foreign influences gained in early training by one generation to die away. Those who saw the collections of English sculpture recently shown in the only really adequate sculpture gallery in the three Kingdoms—that of the Shepherd's Bush Exhibition—will realise that the vigorous young growth of modern English sculpture needs to fear none in technical accomplishment, and may confidently look forward to artistic development of which it itself contains the seeds.

HERE AND THERE.

THE ideal client: who is he, and where is he to be found? These are matters of peculiar interest to the architect. Professionally, of course, the nearest approach to the ideal is the client with abundant means who regards the architect as a man of profound ability, both in design and practical construction, to whom everything can be left without qualification of any sort, and who is bound to do the right thing. In point of nationality he should perhaps be an Irishman of sporting instincts, with a leaning towards intemperance. With such a client the architect can build just the kind of house he himself fancies, the client's share in the proceedings being relegated to the humble provision of the necessary funds. That such clients have existed, and possibly still exist, is a fond unwritten belief, but in the common run of practice they are not to be found. The clients that the ordinary architect has to deal with are of quite different character. There is the client who doesn't know exactly what he wants. He comes to the architect with a book of illustrations of modern houses, and, having selected one or two examples, says he likes "something of this sort"; as though architecture could be put up in tins like Californian pears, distinctively labelled, so that we might recognise the particular brand on sight. The trouble in such cases is that the architect is not given any precise particulars of the requirements, and when the plans have been got out all sorts of troublesome questions are raised. The client possibly is polite, but he thought this was going to be more like that, and he had no idea it would cost so much. And then there is the client's wife, aunt, mother, or other female relative—a very formidable factor to take into account. The wise architect makes a few diplomatic inquiries beforehand, and finds out how the land lies; then, by tactful persuasion, he can get the preliminaries formulated pretty well. But it is notorious that women do not understand plans in the least, and so the architect has to undergo his trial when the building work is commenced. Criticism of drawings is bad enough, but this is quite pleasant chatter compared with criticism of the work in progress; as, for instance, when the client asks whether he cannot have the study put on the south side of the house, instead of on the west (where it is already half built), and seems quite gloomy about the size of the dining-room, though its exact dimensions had been discussed and settled before the work was commenced. And worst of all is the client who lives next door to his new house. In this case he will probably be on the job day and night, watching every brick being laid, every bit of joinery being fixed; causing the foreman to make, *sotto voce*, such forcible observations as must surely prejudice his state hereafter, and reducing bricklayers and carpenters to the verge of profane apoplexy. As for the architect, he, poor man, is ill-paid on this £600 house, and holds his head despairingly as he opens the daily letter from the client, who is sure that something is wrong with the drains, is alarmed at the shocking way the mortar is made, and does not like the grates that have been sent down, which he is certain are not the ones selected. Well, therefore, may we understand the position of M. Tony Garnier, the brilliant *Prix de Rome* winner of recent years, whose fervent desire is that he shall ever be spared the catastrophe of having a private client thrust upon him. He is at present quite content with a city instead, the city of Lyons, for which he has designed and is building a huge scheme of markets and abattoirs which will cost a million and a half sterling.

M. Garnier's predilections point the way perhaps to the ideal client of ordinary practice—the municipality. That may be one reason why a competition for some

large civic building draws so many competitors. The course of true architecture never runs smooth, but I should say that it runs with least friction in the case of a municipal building. Apart from the occasional interjection of a frivolous question by one of those councillors whose only hope of ever being heard is to make themselves a nuisance to somebody, the personal note is absent, and, as a consequence, the work is likely to run along very comfortably. The preliminaries are bound to involve a certain amount of worry, but once the building is well on the way the architect can walk its floors with tranquillity.

* * * *

During the past week the sanitary inspectors in congress at Llandudno have had Sir James Crichton Browne telling them of the disease that lurks in dust, and masked clerks have gone in procession to Hyde Park in order to draw attention to the high percentage of consumptive cases that occur in unhealthy subterranean offices. The latter question, fortunately, has very little application to the architect, who must have good daylight for drawing purposes, and generally houses himself therefore on the upper floors of our business buildings. But the dust danger concerns him very closely. What of all those rolls of plans of jobs long finished which lie on the shelf next the ceiling, or on top of the bookcases? It is to be hoped that Sir Crichton Browne will confine his attentions to motor-made roadways and bedroom wardrobes. The dust on the latter, we are told, contained "organic and inorganic matter, silica, and insoluble silicates, oxide of iron and alumina, lime, carbonic acid, with traces of sulphuric and phosphoric acid: vegetable and animal fibres, a few feather-barbs and fragments of wood, also squamous epithelial scales from the skin and small round cells, starch granules and a few pollen spores." This is a formidable array enough. I tremble to think what might be found in the architect's drawing-office. We are all getting sanitarians of the extremest sort now, and the architect, failing the appearance of a professional female partner, will certainly have to contemplate a spring clean with a vacuum.

* * * *

An invoice received by a firm of shop-fitters, Messrs. E. Pollard and Co., Limited, has been put into my hands as suitable for reference in these columns. It opens up quite a new vision of presenting accounts which is at once amusing and polite. The firm in question had employed a polisher on some casual work, at the completion of which they received the following: "Just a few lines with your kind Acceptance Hoping you are quite well As it leaves me at present Well Dear Sir, I wish to say that I am The Polisher which your Foreman engaged at Mr. Martins Establishment on the New Oak Shop Front Which your foreman and His Friend put in for Mr. Martin Of which Dear Sir No doubt you have been waiting for my Bill of which Sir, I could not send before As I have been waiting to finish it. Of which Dear Sir it is now finished And has given every satisfaction to Mr. Martin And I am sure to yourselves as well if you see it And thanking your foreman for his kindness in giving me the pleasure to do the Job And hope to have the Pleasure of doing more for you in the future if at any time your firm should be working in this district My Bill Dear Sir is 16 shillings Sir. Of which Dear sir I Think is fair and Reasonable." There is a smack of the modern Pepys in this that I like. Its deferential character is in strong contrast to the sanguinary terms in which the building artizan has been known to "down tools" and demand his "chips."

UBIQUE.

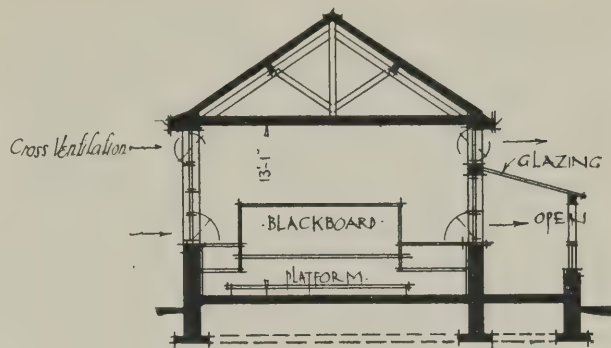
A NEW TYPE OF INFANTS' SCHOOL AT THORNBURY.

THIS school, which, as recorded in last week's issue, has just been completed, occupies a site on the Leeds Old Road, and provides accommodation for 368 scholars. The principal front, which faces the road, and has a south aspect, is occupied by class-rooms on each side of a central assembly hall. This hall will accommodate the whole of the scholars at one time, and can also be used for physical exercises and school singing without causing disturbance to the classes in the various class-rooms. It is amply lighted and cross-ventilated, with entrance doors in the front bay, which will be found useful should the hall be used for a public meeting.

The approach to the hall for general school purposes is from the covered corridors, which traverse the whole length of the school on the north side of the class-rooms. At each end of the building is an open-air teaching verandah, the south sides and ends of each being provided with movable glazed partitions, as a protection during inclement weather.

These open-air class-rooms and the open verandah on the north side are an innovation, with a view to encouraging the further development of open-air teaching, which was introduced at Thackley School with beneficial results. The open verandah permits of each class-room being effectively cross-ventilated, and also gives the advantage of better lighting than would have obtained if a closed corridor had been used.

The babies' room is situated at the south-west angle of the school, this being the most sheltered position of the site. The room is so arranged that it can be shut off from the remainder of the school building if so desired, and is of ample dimensions, having a large bay window on the south. An open fireplace is also provided, in addition to the heating pipes and radiators,



SECTION THROUGH CLASSROOMS.

and separate provision is made for infants' cloaks and lavatories.

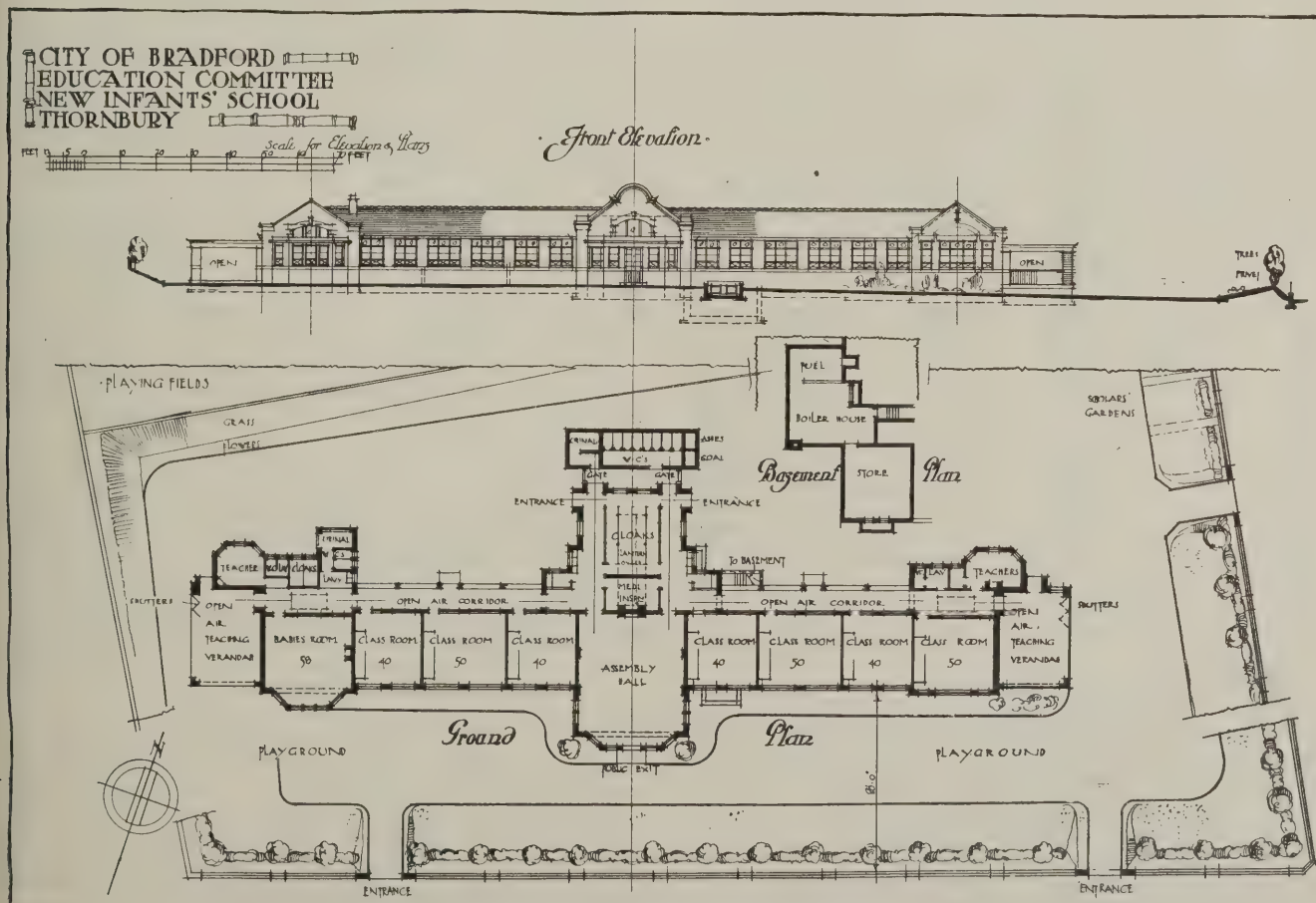
In the centre of the block immediately behind the assembly hall is the medical inspection room, which can also be used as an ante-room to the hall.

The cloak-room and lavatory accommodation for the main school is centrally situated behind the assembly hall. It is lighted on all sides and from lantern lights in the ceiling, and is efficiently cross-ventilated.

To the rear of the cloak-room, and cut off from it by a corridor, is the latrine block, which is in convenient and close proximity to the school, and allows of easy access.

The teachers' rooms are situated at the extreme ends of the corridors on the north side, and allow of a thorough supervision of the playgrounds and conveniences. Each of these rooms is provided with an open fireplace in addition to the ordinary heating apparatus.

Simplicity in planning has been the chief aim in the designing of these buildings, and the arrangement of the principal rooms in one long block has obviated the adoption of large projecting wings, and consequent



W. WILLIAMSON, CITY ARCHITECT.

recesses, and gives a good and uninterrupted playing area, lending itself to every possible supervision.

The heating is on the low-pressure hot-water system, and natural ventilation is obtained by the formation of hopper windows in the lower portion of the windows, and pivot-hung-sashed in the upper part.

The lighting is by electricity, which is a new departure as far as Bradford schools are concerned.

Externally, the buildings have been treated in a simple manner, at the same time being quite expressive of school work, and the demand for cheaper school buildings has received careful consideration. The lay-out of the space in front of the school will form a very pleasing setting to the buildings. Embankments have been formed along the road boundary, and are well planted. Small plots have also been formed for the use of the school children, with a view to encouraging their interest in nature study.

The buildings and grounds, exclusive of site, were estimated to cost £5,610, inclusive of furniture.

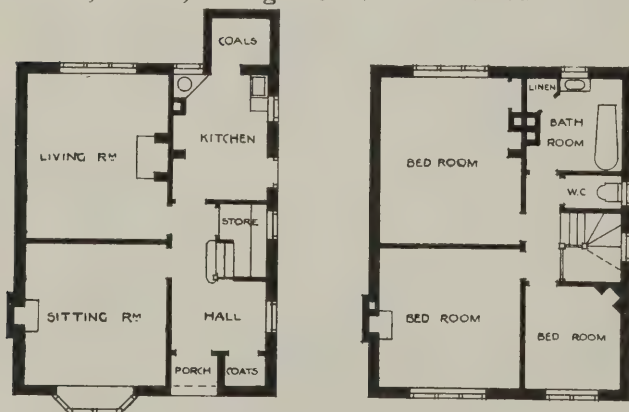
An important point to be borne in mind in considering the cost of the school is that the site acquired is much larger than is needed for the school just erected, the extra area being reserved for future extensions, which it is proposed to use for the present as a playing field. The expense, however, of fencing the whole of the site is included in the cost of the present school. The cost of the school works out at £15 4s. 10d. per scholar, which constitutes a record for cheap buildings erected in Bradford, not excepting the open-air school erected at Thackley, which, although somewhat of the nature of a temporary building, cost £16 14s. per scholar. The plans have been prepared and the erection of the school supervised by the City Architect, Mr. W. Williamson, Licentiate R.I.B.A.

CORRESPONDENCE.

The Planning of Cottages.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—As a competitor in your recent competition for plans of a suburban house I was very much interested in the letter and plans submitted by Mr. Arthur Bailey, in your issue of September 3rd, but as he says the only questionable feature in his plan is the position of the w.c. on ground floor, might I take the liberty of suggesting another for his consideration, without, I think, adding to the cost of his house?



Would not the positions of the small bedroom and bathroom be more conveniently reversed, so as to get the bathroom directly over the kitchen, and so simplify the hot-water supply to bath and linen room, and by removing the w.c. from ground floor to position next bathroom, as shown on the accompanying plan, the whole of the domestic offices, and drainage connecting same, would be grouped together, at the same time leaving a good square hall on the ground floor, with the addition of a coat cupboard?

FRANK NASH.

OUR PLATES.

Caserne des Celestins, Paris.

THIS building (the main entrance of which is shown by the photograph reproduced as the frontispiece to the present issue) forms part of the block of barracks on the Ile de la Cité. It is situated on the south side of the Boulevard du Palais, opposite the Palais de Justice. The great archway, with its huge doors, is very dignified in effect, and the sculpture around it, while adding an element of richness, does not disturb the stern serenity appropriate to a barracks. M. Hermant was the architect.

Strangers' Room, Royal Automobile Club, London.

The interior treatment of the Royal Automobile Club is noteworthy for its chaste style. The strangers' room, shown on the opposite page, is a good illustration of this. The Georgian work of the period of William Kent seems here to have been the model followed. It is all extremely well executed, and is a striking testimony to the ability of the architects. The room is on the ground floor of the club, to the right of the entrance hall.

Design for a Public Monument.

The design reproduced on page 287 is one of those recently approved by the Board of Architectural Education. It is by Mr. F. O. Lawrence, of the Liverpool School of Architecture. The subject set was a monument in a public place commemorating the bringing of water to a town. In the design illustrated the underlying idea is well emphasised by the fountain and its basins, which are placed in relation to an architectural background. The designer has evidently studied good models, among which we may discern (apparently) Carpeaux's fountain in the Luxembourg Gardens.

The Malthouse, Burghclere.

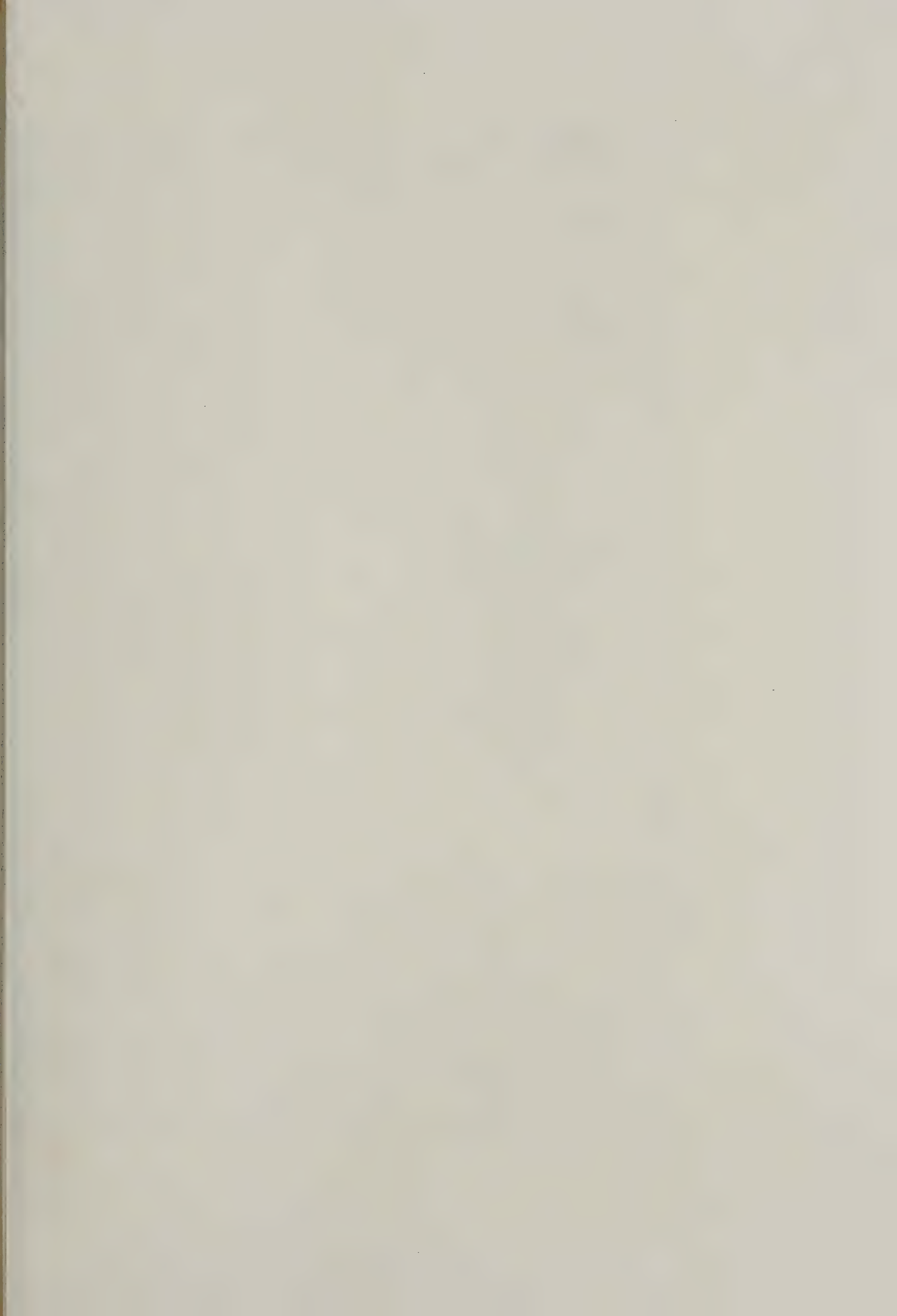
This house, illustrated on page 289, was formerly a farmhouse. It has been extensively altered and rebuilt under the direction of Mr. Francis Bacon, the offices being all quite new. In carrying out the scheme some fine old work was discovered. In the hall, behind the plaster ceiling, old oak beams were found and have now been exposed, and, similarly, in the drawing-room the panelling, which had been covered over with canvas and papered, has been restored. The fireplaces occupied so much space that the chimneys were taken down and rebuilt of less extravagant dimensions. The roof had to be entirely stripped, as all the lathing was rotten. The old tiles have, however, been rehung again after the roof had been covered with felt. Extensive barn accommodation adjoining the house has been divided up and chimneys built, and thus converted into a garage and chauffeur's cottage. Electric light is now installed throughout.

Entrance to an American Country House.

We reproduce on pages 290 and 291 a scale drawing of the entrance to a country house at Kensington, Long Island, New York (Mr. Aymar Embury, architect), as the thirty-ninth example in our series of drawings by well-known architects. Domestic work in America is making a very decided advance, and this entrance is typical of the best work that is now being done. We are indebted to our contemporary, "Architecture," for the illustration.

Side Entrance, Palais de Justice, Paris.

As the Centre Plate in this issue we reproduce a photograph of the magistrates' entrance to the Cour de Cassation, Paris. This forms part of the work which Duc carried out at the Palais de Justice, and is thoroughly characteristic of the style which he adopted. It is extremely individual, and is perhaps the most talented example of "Néo-Grèc" that can be found in France.





MAGISTRATES' ENTRANCE TO COUR DE CASSATION



Photo: Architects' and Builders' Journal.

PALAIS DE JUSTICE, PARIS. DUC, ARCHITECT.



ROYAL AUTOMOBILE CLUB, PALL MALL, LONDON: STRANGERS' ROOM.
MEWES AND DAVIS AND E. KEYNES PURCHASE, ASSOCIATED ARCHITECTS.

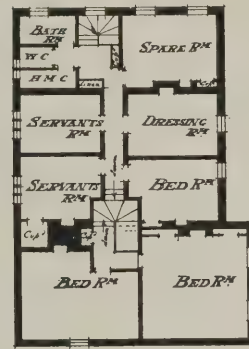
(See page 284.)



A MONUMENT IN A PUBLIC PLACE
COMMEMORATING THE BRINGING OF WATER TO A TOWN.

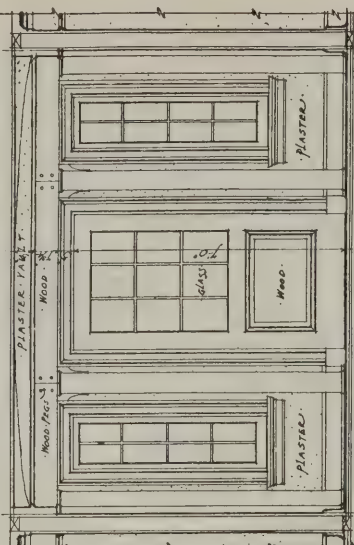
TESTIMONIES OF STUDY FOR R.I.B.A. FINAL EXAMINATION: APPROVED DESIGN. BY F. O. LAWRENCE.

(See page 284.)

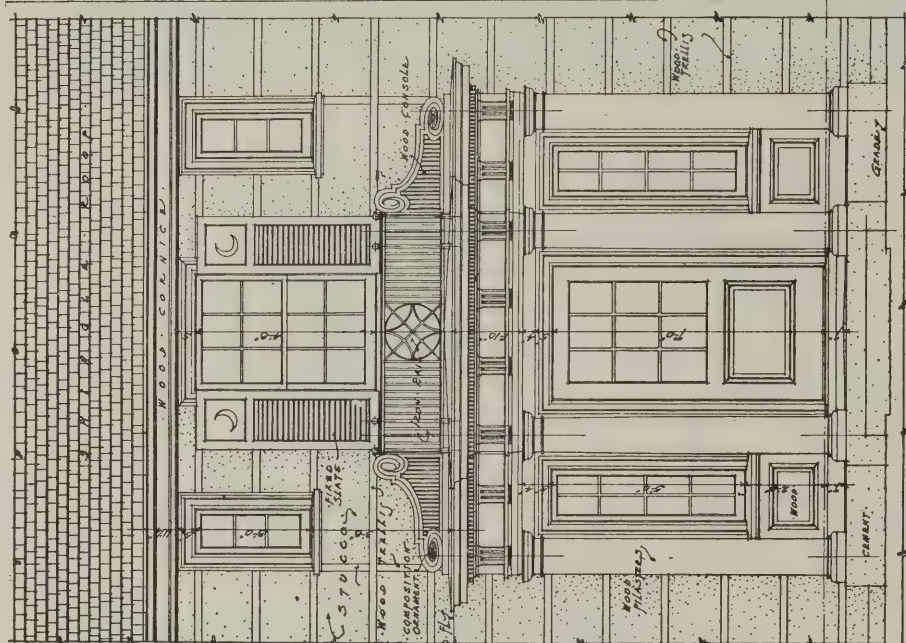
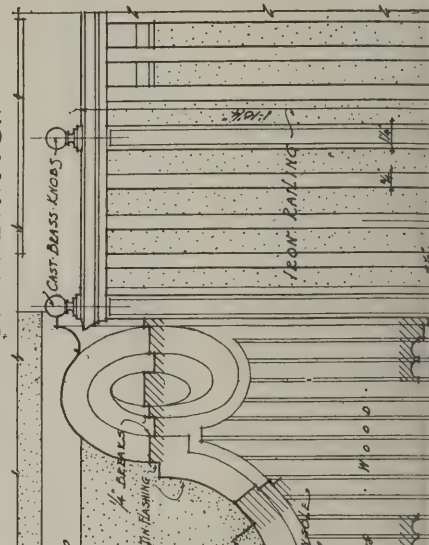


THE MALTHOUSE, BURGHCLERE. FRANCIS BACON, ARCHITECT.

(See page 284.)



INTERIOR ELEVATION.



ELEVATION:

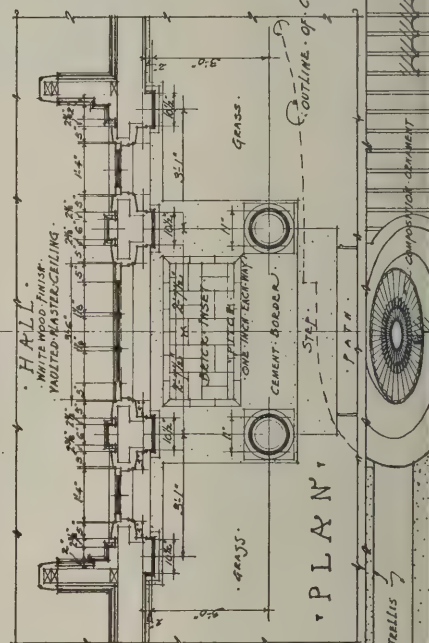
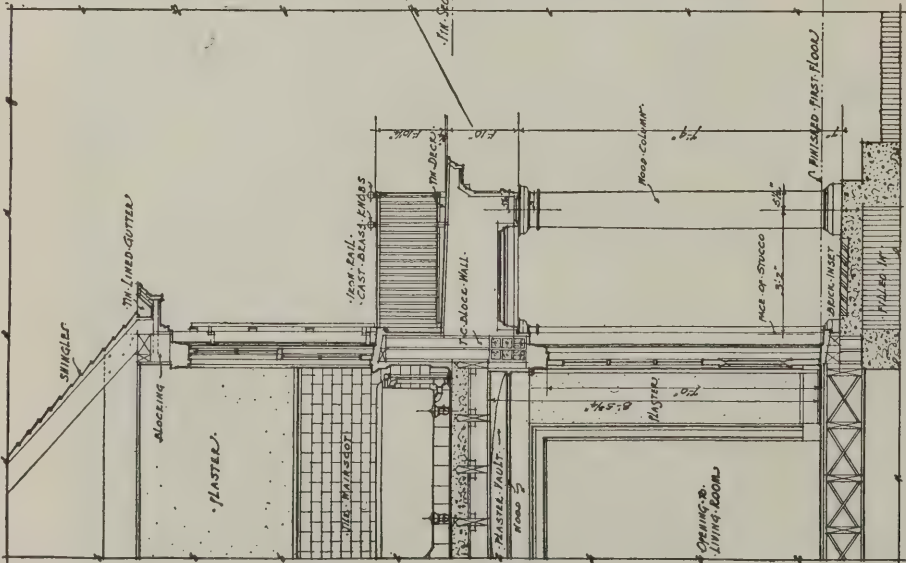
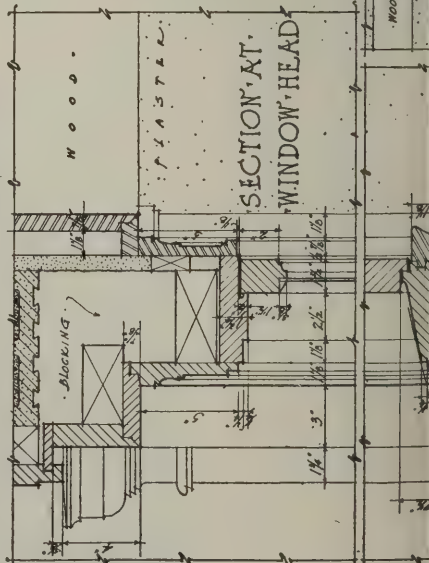


PLATE.



SECTION THROUGH ENTRANCE.



SECTION AT
WINDOW HEAD.

COMPETITIONS.

Housing Scheme, Newcastle.

The Newcastle Corporation Housing Committee have awarded a prize of £50 for the best competitive design for the laying out of a portion of the municipal estates at Low Walker for housing purposes. The design is by Messrs. E. Cratney and S. Kaye, of Newcastle. Eighty acres are embraced, and 1,195 houses are proposed to be erected, in blocks of two, three, four, five, and six. To meet the requirements of the low-paid worker, three types of dwellings have been adopted, containing one, two, and three bedrooms respectively. The principle of providing one large living room cross-ventilated, with a small scullery adjoining, has been followed throughout. Baths are provided in all the houses, and in those of two and three bedrooms separate bathrooms have been placed on the first floor. A covered yard for washing purposes has been provided in the larger houses, thus enabling the sculleries to be kept small, and so preventing them being used as living rooms. It is estimated that the rents will vary between 4s. and 6s. a week, exclusive of rates. The houses are proposed to be built with 11-in. hollow walls, faced with hard local bricks burnt grey, with arches, sills, and dressings in red sand-stock, the roofs being covered with pantiles.

COMPETITIONS OPEN.

SEPTEMBER 30.—FIRE STATION, BLACKBURN.—Blackburn Corporation invite designs for a new fire station and firemen's dwellings from architects practising within the borough. Premiums £100, £50, and £25. Assessor, Mr. F. G. Briggs, F.R.I.B.A. Apply, Town Clerk, Town Hall, Blackburn.

SEPTEMBER 30.—SANATORIUM, NORTH WALES.—The King Edward VII. Welsh National Memorial Committee invite designs for sanatorium to cost £20,000. Premiums £100, £50, and £30. Particulars from Secretary, Municipal Offices, Westgate Street, Cardiff.

OCTOBER 4.—WORKING CLASS DWELLINGS, BRADFORD.—The City of Bradford Council invite architects to submit designs for laying out an estate of 50 acres and for erecting small houses thereon for the working classes. Mr. Henry T. Hare, F.R.I.B.A., will act as assessor. Particulars may be obtained on application to Frederick Stevens, Town Clerk, Town Hall, Bradford. (Deposit, one guinea.)

OCTOBER 31.—TOWN PLANNING SCHEME, YORK.—Premiums of £100, £50, and £25 are offered for a town-planning scheme for certain areas in and near York. Particulars, F. W. Spurr, City Engineer, Guildhall, York.

NOVEMBER 1.—ROYAL PALACE AND LAW COURTS, SOFIA.—Particulars, Commercial Intelligence Branch, Board of Trade, Basinghall Street, E.C.

NOVEMBER 29.—BAND PAVILION, FOLKESTONE.—Folkestone Corporation invite designs for a band pavilion to be erected on the face of the West Cliff, at a cost, including approaches, not exceeding £20,000. Mr. Edwin T. Hall, F.R.I.B.A., will act as assessor. Intending competitors should forward deposit of £1 rs. to A. F. Kidson, Town Clerk, Town Clerk's Office, Folkestone, when conditions will be sent.

JANUARY 2.—ROYAL EXCHANGE, MANCHESTER.—The Board of Directors of the Manchester Royal Exchange, Ltd., invite designs for additional new buildings and alterations on the existing Exchange buildings. Mr. James S. Gibson, F.R.I.B.A.,

will act as assessor. Particulars, instructions, and plans will be forwarded on application to Richd. J. Allen, Master, the Manchester Royal Exchange, Ltd., Manchester, accompanied by a cheque for £2 2s.

JANUARY 2.—GOVERNMENT BUILDINGS, OTTAWA, ONTARIO.—Architects are invited to submit sketch designs in a preliminary competition for the erection of departmental and courts buildings from the designs submitted. Six will be chosen by the assessors, the authors of which will be invited to take part in a final competition, for which the five unsuccessful competitors shall each receive an honorarium of (\$3,000.00). The competition is limited to British subjects practising in the British Empire. Mr. T. E. Colclutt, Mr. J. H. G. Russell, and Mr. J. O. Marchand will act as assessors. Conditions for both competitions may be had on application to R. C. Desrochers, secretary, Department of Public Works, Ottawa, and at the office of the High Commissioner for Canada, 17, Victoria Street, London.

FEBRUARY 15.—SAVINGS BANK, VERONA.—The Savings Bank of the City of Verona invite designs for a new building to be erected on an area bounded by the Piazza della Erbe, Via Camera di Commercio, Via Portici, and Via Mazzini. Premiums: (1st) Lire 30,000 (about £1,200) and (2nd) Lire 15,000 (about £600). The President of the Savings Bank and four others, to be appointed by the Council of Administration, will act as assessors. Applications to be addressed to the seat of the Institution, Via Garibaldi No. 1.

NO DATE.—NEW OFFICES FOR THE BOARD OF TRADE, ETC., LONDON.—The Commissioners of H.M. Works and Public Buildings invite preliminary sketch designs in competition for new offices for the Board of Trade, etc., to be erected on a site in Whitehall Gardens, London, S.W. From sketch designs submitted the authors of not more than ten designs will be selected to submit designs in a final competition at an honorarium of £300 each. The assessors are Mr. Reginald Blomfield, M.A. (Oxon.), A.R.A., P.R.I.B.A., Mr. John Belcher, R.A., and Sir Aston Webb, C.V.O., C.B., R.A. Conditions of the competition, which is open to all British subjects, with full particulars of the accommodation required and plan of site, can be obtained on application to the Secretary, H.M. Office of Works, etc., Storey's Gate, London, S.W., and deposit of £1 rs. (Site plan and summary in our issue of September 3rd.)

NO DATE.—WORKMEN'S COTTAGES, SKELMANTHORPE.—Skelmanthorpe Urban District Council invite competitive designs for twelve workmen's cottages, to be built by the Council. Particulars, Clerk, Wilson, Fisher, Skelmanthorpe, near Huddersfield.

NO DATE.—CIGAR SHOP FRONT, LONDON.—Messrs. Martins, Ltd., of 25, Cheapside, E.C., offer a prize of £50 for a design for a shop front, to be erected in Piccadilly. The assessor is Mr. Henry Tanner, F.R.I.B.A., of 12, Regent Street, London, to whom inquiries should be addressed.

GLASSWORKERS' DISPUTE SETTLED.

Under the auspices of the London Labour Conciliation and Arbitration Board, friendly conferences have been held between the London Employers' Plate Glass Trades Association and the National Amalgamated Furnishing Trades Association (Glassworkers' Section), at the offices of the London Chamber of Commerce. Mr. C. E. Town, assistant secretary of

the London Chamber of Commerce, at the request of the parties, occupied the chair. As a result of the discussion of the various points in difference, an agreement has been arranged by which all the points in dispute have been settled by mutual consent. The agreement signed by the parties concerned provides for the future conditions of employment in the glassworkers' trades, fixes the number of hours, the rates of wages, payment of overtime, allowances for meal times, number of apprentices, etc.; provides for the settlement of future differences between the parties, and remains in operation for twelve months, subject to due notice of termination thereafter. The men, who had been on strike for six weeks, have resumed work.

OBITUARY.

Mr. George Tinworth.

The death took place last Wednesday morning of Mr. George Tinworth, the well-known modeller in terra-cotta. He was travelling by his usual morning train from his home at Kew to the Lambeth Works of the Royal Doulton Potteries, where he had been engaged for forty years, and was found to be dead on the arrival of the train at Putney. He had not been much before the public of late years, his chief work having been accomplished during the Gothic revival and while the influence of Ruskin and the encouragement of George Edmund Street lasted. For this latter architect he modelled the large "Crucifixion" in the reredos at York Minster and a series of twenty-eight panels in the Guards' Chapel, St. James's Park. Other panels of Biblical subjects may be seen in Sandringham Church, Truro Cathedral, the English Church at Copenhagen, Old Lambeth Church, Edinburgh Museum, and elsewhere. The Church of the Mediator, New York, has quite recently received two panels, the last large works to leave Mr. Tinworth's studio. Statues and groups by him are also numerous—for example, the Fawcett in Vauxhall Park, Spurgeon in the Stockwell Orphanage, and Bradlaugh at Northampton. Tinworth was born at Walworth in 1843, the son of a wheelwright. He joined the Lambeth School of Art, then under the direction of Mr. John C. L. Sparkes, and was persuaded by him to enter the Doulton Works in 1867. After passing through the Royal Academy Schools, Tinworth developed a vivid style of his own in the numerous reliefs and statuettes which quickly followed each other, and it was in relation to some small panels, exhibited at the Royal Academy in 1875, that Ruskin described the artist as "full of fire and zealous faculty breaking its way through all conventionalism to such truth as it can conceive; able also to conceive far more than can rightly be expressed on this scale."

Tar and Wood By-products.

A "special tar and other wood by-products number" of the journal published by the Swedish Chamber of Commerce in London contains an important article on "The Advisability of Abolishing the 'Stockholm Tar' Brand," because no tar is now shipped from Stockholm; and there is an instructive account, fully illustrated, of the manufacture of "peasant-made" tar, as distinguished from factory tar. Any of our readers who are interested in these subjects may obtain the publication, post free, on mentioning this notice, from the Swedish Chamber of Commerce, 5, Lloyd's Avenue, E.C.



CHURCH OF THE GOOD SHEPHERD, FRENHAM, SURREY.

W. CURTIS GREEN, F.R.I.B.A., ARCHITECT.

EDUCATIONAL PROGRAMMES.

L.C.C. Central School of Arts and Crafts.

An exhibition of students' work which is being held at the Central School of Arts and Crafts, Southampton Row, London, W.C., from September 15th to October 3rd, daily excepting Saturdays, includes, as well as more than a score of other subjects, architectural and furniture designing, stained glass work, wallpaper designing, etc. In the prospectus of the school for the session 1913-14, we notice that in the department devoted to architecture and the building crafts the architectural design and drawing section is in the hands of Mr. S. B. K. Caulfield, F.R.I.B.A., while Mr. Macdonald Gill, Mr. P. J. Waldram, F.S.I., and Mr. H. J. Gough lecture on structural mechanics, and Mr. A. D. Davidson teaches shade drawing for architects, and there are to be special lectures on "Growth of the Decorative Arts," by Mr. S. C. Kaines-Smith, M.A., and on "Art and Craft of English Architecture," by Mr. Theodore Fyfe, F.R.I.B.A.

Camberwell School of Arts and Crafts.

In this County Council School, which is situated in the Peckham Road, London, S.E., there is a department of architecture, building construction, and decoration of buildings; Mr. W. T. Benslyn, A.R.C.A., lecturing in architectural design and Mr. E. A. Young, A.R.I.B.A., in architectural history. Stone carving and modelling, plasterers' work, leadwork, drawing and design for painters and decorators, and house-painting and decorating, are included in the section.

Glasgow School of Architecture, and School of Art.

Prospectuses are to hand of the School of Architecture and the School of Art of the Royal Technical College, Glasgow. The various courses of study provided by the School of Architecture are given both in the Royal Technical College and the School of Art, and are described as "the necessary complement to the practical training of the pupil or apprentice in an architect's office." The normal course for day students leads to a diploma, the certi-

B.Sc., A.R.I.B.A., and the lecturer Mr. James S. Boyd, Licentiate R.I.B.A., with Vernon Constable, A.R.I.B.A., and Mr. Joseph Wilson as assistants. In the School of Art Mr. Alexander McGibbon, A.R.I.B.A., is the professor of architectural design and Mr. Edward G. Wyllie the instructor.

Manchester Municipal School of Technology.

A prospectus of part-time courses in municipal and sanitary engineering, architecture, and building trades, given in the Manchester Municipal School of Technology, sets forth the provisions for advanced study and research, as well as progressive courses arranged for students who are employed during the day. The municipal and sanitary engineering section seems to be particularly well developed, and the architectural and building courses also are very comprehensive.

Regent Street Polytechnic.

Excellent facilities for students are afforded by the instruction and organisation of the School of Architecture at the Regent Street Polytechnic. The studios of the school are open daily from 10 to 4.30, and each evening from 6.30 to 9.30, and the instruction is in the hands of professional men who are also qualified and experienced teachers. In conjunction with the work of the studio, courses of instruction are arranged consisting of lectures, demonstrations, and practical work in all branches of architecture, and in the allied building trades. We notice that the fees are remarkably low.



CHURCH OF THE GOOD SHEPHERD, FRENHAM: VIEW LOOKING EAST.

ENQUIRIES ANSWERED.

Books for R.I.B.A. Examinations.

STUDENT writes: "Please give a list of books recommended to students entering the R.I.B.A. Examinations."

—The "R.I.B.A. Kalendar" contains a "List of Books Recommended to Students" which may be taken to comprise practically every book with which it is necessary for the student to familiarise himself. The list is, however, of somewhat alarming proportions, and does not differentiate in any way between the books which it is desirable should be possessed for constant reference and those with which a perusal and mere general acquaintance is all that can be looked for, or which, either by reason of later research in their especial subject, or special pleading in support of views not generally accepted, cannot be received entire as unimpeachable authorities.

As instances of these respective classes may be cited (1) "A Short Critical History of Architecture," by Mr. H. H. Statham; (2) "Basilica di San Marco," by F. Organia; (3) "Analysis of Gothic Architecture," by R. and J. A. Brandon; (4) (not included in R.I.B.A. list), "Character of Renaissance Architecture," by G. H. Moore. This present list is an attempt to compile a reduced selection of books to which constant reference may be necessary, and of which, accordingly, actual possession is desirable.

General.

Atkinson, T. D.: "English Architecture," 8vo., 1904. An excellent general survey.

Belcher, J.: "Essentials in Architecture," 8vo., 1907. A touchstone for architecture.

Fergusson, J.: "History of Architecture of all Countries," 8vo., 1876-1910. Still the best comparative account of world-wide scope. Though sometimes prejudiced in his views, Fergusson states things logically, so that his opinions may be judged and dissented from if unconvincing. On this ground alone his work by compelling thought is highly educative.

Gotch, J. A.: "The Growth of the English House," 8vo., 1909.

Simpson, F. M.: "A History of Architectural Development," 8vo., 1905-9.

Statham, H. H.: "A Short Critical History of Architecture," 8vo., 1912.

Classical.

Anderson, W. J. and Spiers, R. Phené: "Architecture of Greece and Rome," 8vo., 1908. A good general survey.

Lethaby, W. R.: "Greek Buildings," 8vo., 1908. An excellent guide to methods of systematic scholarship in the study of museum fragments.

Spiers, R. P.: "The Orders of Architecture," 4to., 1902. One of the best general works on the Orders considered historically. For draughtsmen's office use, Messrs. A. W. S. Cross and Alan E. Munby's "Practical Notes for Architectural Draughtsmen," sm. fol., 15s. net, is useful.

Mediæval.

Atkinson, T. D.: "A Glossary of English Architecture," 8vo., 1906.

Bond, F.: "Gothic Architecture in England," 8vo., 1906. A good general account, but containing certain rather prejudiced views.

Lethaby, W. R.: "Mediæval Art," 8vo., 1904. Even more valuable as a revelation of mediæval conditions is the same author's "Westminster Abbey and the King's

Craftsmen," though this is not given in the Institute list.

Prior, E. S.: "Gothic Art in England," 8vo., 1900. Mr. Prior's exposition of the influences which made English Gothic differ in provinces sheds a new light on mediæval Church architecture.

Willis, R.: "Vaults of the Middle Ages," 4to., 1910 (Reprint). Invaluable.

Renaissance.

Anderson, W. J.: "Italian Renaissance," large 8vo., 1909.

Blomfield, R.: "Renaissance in England," 1500-1800. 2 vols. Also short edition, sm. 8vo., 1897. Invaluable.

Gotch, J. A.: "Early Renaissance Architecture (in England)," 8vo., 1901.

Simpson, F. M.: "Renaissance in Italy, France, and England," 8vo., 1911. The only comparative work in English on this special subject.

Ward, W. H.: "Architecture of the Renaissance in France," 1495-1830, 8vo., 1911.

Geometry.

McGoodwin, H.: "Architectural Shades and Shadows," 4to., 1904.

Materials.

Ellis, G.: "Modern Practical Carpentry," 8vo., 1906.

Ellis, G.: "Modern Practical Joinery," 8vo., 1908.

Pite, B., and others: "Building Construction," 2 vols. (Architect's Library), 8vo., 1910-13. Also useful under "Construction."

Hygiene, etc.: Model Bye-laws.

L.G.B., or annotated edition by Messrs. Knight's.

Reid, G.: "Practical Sanitation," 8vo., 1908.

Specifications, etc.

Macey, F. W.: "Specifications," 8vo., 1901. Also "Specification No. 15," 1913. 3s. 6d. Most useful.

Rea, J. T.: "How to Estimate," 8vo., 1912.

Strength of Materials and Construction.

Mitchell, C. F.: "Building Construction," 2 vols., 1911-12. A clearly-written and illustrated general work, suffering only from lack of appreciation of the design quality in simple constructive details.

Rings, F.: "Reinforced Concrete," 8vo., 1910.

Waldram, P. J.: "Principles of Structural Mechanics," 8vo., 1912.

Finishing Measured Drawings.

J. M. (Kirkcaldy) writes: "What is the customary style of finishing measured drawings?"

—Kipling's words, "There are nine-and-sixty ways of constructing tribal lays, and every single one of them is right," are equally applicable to the question propounded. Each man must be a law unto himself and (keeping in view the purpose to be served by the particular measured drawings in hand) must use his judgment as to what is possible or expedient in the case of the building depicted. Speaking generally, present-day custom leaves three ways open to the student: (1) The rendered drawing, finished in a clean pale line, either pencil or watered ink, and shaded in wash by the rules of sciography. This method is, of course, the ideal, at presenting a truthful impression of solid building in three dimensions, and should be adopted for all classical or monumental work. Note that it represents form and mass, and *lines* should be suppressed and made to serve as guides only for the

washes which render the forms in terms of light and shade. (2) The line drawing, either finished in strong black pencil, or inked in. Measured work usually suffers some loss in inking in, and if it can be cleanly finished in pencil on the spot, that is to be preferred. The thickness of line must be governed by the scale of the drawing and of the design, but the fashion for depicting buildings in stripes of tar 1-16 in. thick, though arresting in competition design, is pernicious as a representation of architecture in being. The crowded nature of most mediæval work makes the preparation of a rendered drawing a labour of such magnitude that line draughtsmanship is usually followed in measured drawings. (3) The third type of drawing is that followed where it is intended to preserve a record of every minute detail of the construction of a building, including jointing and present condition of structure, rather than to depict its architectural qualities of design. A straightforward inked-in drawing as much like a working drawing as possible is usually made.

As to scale, the ordinary working scales, $\frac{1}{8}$ -in., $\frac{1}{2}$ -in., and full size are usually followed. There may be occasions when the general drawings may profitably be to 1-16-in. scale, or the details to 1-in. scale, but this depends on the scale of the work. $\frac{1}{4}$ -in. scale drawings are generally too small to show detail in and too large to leave it out, but in some instances a single scale of $\frac{1}{4}$ in. will suffice in lieu $\frac{1}{8}$ -in. and $\frac{1}{2}$ -in. sheets. Querist should endeavour to see the R.I.B.A. prize drawings, either when on view at Conduit Street or on tour in the provinces, or a very fair idea of current practice could be obtained from the large reproductions thereof published each year in the "Architectural Association Sketch Book," which can be obtained from the A.A., 18, Tufton Street, price one guinea per volume. The "Liverpool School of Architecture Sketch Book," price 2s. 6d., is also valuable. G.

Dampness in Basement.

"DAMPNESS" writes:—"The basement floor of a house, seven months' completed, composed of 4-in. rough under bedding and 4-in. cement concrete, $\frac{3}{4}$ -in. cement finish, sometimes becomes very wet, and always after washing operations takes a fairly long time to dry. One spot of some two square feet is almost always wet. The house stands on high land, the subsoil being good hard clay. There are no burst pipes, but, before we connected the cellar drain to the sewer, severe rain storms flooded the cellar to a depth of some 10 in. for four days. This was the same nine months ago, since when the cellar has many times been perfectly dry for weeks together. Can you suggest the cause and also a cure?"

—It is at least probable that the nuisance will abate as the building becomes more seasoned. It is to be gathered from the statement that the wetness does not amount at any time to actual flooding, but is merely surface dampness; and it appears likely that it is actually condensation (on a suitable surface) of moisture drying out from the building, the two-foot patch most subject to the appearance being possibly gauged or trowelled differently from the other flooring. Sluggish ventilation most likely assists the flooring to remain wet. If this is the correct explanation no real remedy seems possible—it would merely amount to an attempt to anticipate nature—but a drying-stove such as the "Turk" might expedite things. If, on the other

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A. MCINNES GARDNER, I.A., AND ROBERT WHYTE, ARCHITECTS.

hand, the dampness penetrates from without (which, by the situation, appears unlikely) a layer of asphalt, or cement mixed with one of the modern damp-resistant additions, seems the only recourse likely to be effective. G.

Renaissance Churches to Measure.

A correspondent asks whether we could tell him of any Renaissance churches within fifty or sixty miles of Liverpool suitable for measuring for the R.I.B.A. Intermediate Examination.

—Good guide books usually contain sufficient indication of the character of the more important buildings in the districts with which they deal. In or near both Liverpool and Manchester there are many such churches as this correspondent requires. In making out his list from the guide books he may like to know that one of the best churches in Liverpool, St. Paul's, in St. Paul's Square, is about to be pulled down.

Fire Stations and Firemen's Dwellings.

H. M. (Blackburn) writes: "Can you refer me to books, articles, or illustrations on fire stations and firemen's dwellings?"

—So far as we are aware no work has ever been issued on this subject.

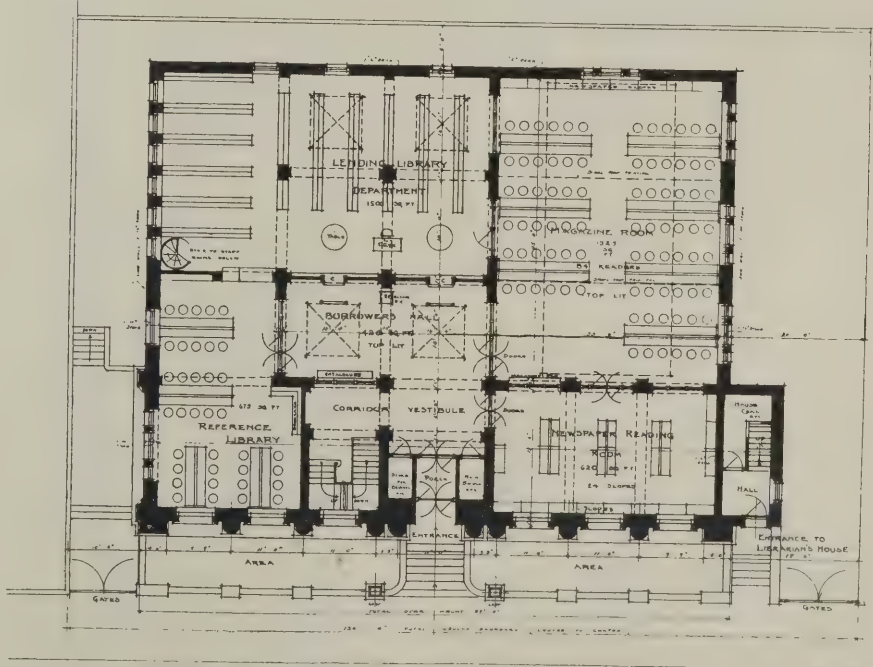
Pamphlet on Town Planning.

The Garden Cities and Town Planning Association, 3, Gray's Inn Place, London, W.C., has just re-issued, at 2d., in a revised and extended form, a pamphlet written by Mr. G. L. Pepler, F.S.I., on "What Town Planning Means." It gives a concise summary of powers and obligations for the local authority and for the landowner.

CLYDEBANK PUBLIC LIBRARY.

This new Glasgow library, just completed, has been built from funds supplied by Mr. Andrew Carnegie, who presented the burgh with £10,000 towards its erection. It presents a dignified appearance

towards the main thoroughfare of the town, and is built of Black Pasture stone. Accommodation for 24,000 volumes is provided in the lending library department. The floors are fireproof throughout. The architects are Messrs. A. McInnes Gardner, I.A., and Robert Whyte, of Glasgow.



"GROUND FLOOR PLAN"

SCALE OF 1" = 10' 0"

CLYDEBANK PUBLIC LIBRARY.

TRADE AND CRAFT.

Superlux Glassware Lighting System.

The General Electric Co., Ltd., after a considerable amount of experimenting, claim to have produced, in the new material which they have named Superlux, a pure white glassware of exceptional reflecting and diffusing qualities, having an absorption factor of only about 5 per cent. over the effective angle of illumination.

Superlux glassware is manufactured in a variety of forms and sizes for use with lamps of every candle-power, and is applicable to all existing systems of lighting, such as direct, indirect, or diffuse. The inner or reflecting surface is of a dull unpolished nature, which is produced in the manufacturing processes, and thus the surface is in perfect correlation to the glass and is not affected in any way by cleaning or rubbing. The outer surface has a subdued polish which, combined with its pure whiteness and texture, produces a most pleasing effect. The system is of limitless application and can be adapted to existing installations. Full particulars may be obtained from the General Electric Co., Ltd., 67, Queen Victoria Street, London, E.C.

A Handbook of Structural Steelwork.

The 1913 London edition of Messrs. Redpath, Brown and Co.'s "Handbook of Structural Steelwork" embodies many excellent features which render it of considerable value as a guide to the design of steel structures. There is, for instance, a very lucid explanation of the main principles underlying steelwork design, the definitions being very clear and concise, while the notes on "Economical Considerations Affecting Design" are of real practical value. For the safe loads on steel stanchions Moncrieff's formulæ have been adopted throughout, and eccentric loading is fully treated by means of coefficients tabulated for each stanchion, section formulæ and explanations of the use of these being given. A useful application of the Moncrieff formulæ for stanchions having "both ends flat" is given in the form of two vertical alignment charts, which are most convenient for the rapid approximation of the safe loads, etc., on stanchions, and apparently represent the first application of this class of graphic chart to stanchion formulæ. An alignment chart on the same principle has been adopted for ascertaining the normal wind-pressure acting on a roof for a given horizontal pressure and inclination of roof, this chart being based on the formulæ due to Duchemin.

Other outstanding and new features in this book are: (a) The arrangement throughout of the overall dimensions, safe loads, compositions, etc., of each simple joist and compound girder on the corresponding lines of two facing pages—a most convenient method, which should effect a considerable saving of time. (b) The indication of web buckling, deflection, and rivet pitch limitations by the use of zigzag lines and italics; (c) tables of minimum spans for various rivet pitches; (d) tables of compound girders arranged in descending order of carrying capacity; tables of safe loads on steel joists embedded in concrete.

Reference is also made to the investigations of Professor Spofford and Mr. C. T. Morris on the determination of the stresses in the bars of lattice stanchions. Several formulæ embodying the results of these investigations are given, and they appear

to have been extended beyond the stages at which they were left by the authors.

A new and useful feature is the section devoted to dimensions of steel joists, angles, tees, etc., with the perspective drawings of end angles and fishplates, stanchion caps and bases, splices and connections, etc. These should be of considerable assistance to draughtsmen. Particular attention may be directed to the half-tone perspective illustrations of standard connecting angles and fishplates, stanchion, girder, and roof details.

A series of tables dealing with the safe loads on stanchions in accordance with the London County Council Building Acts, 1909, forms a very important and useful addition to the book, which is exceedingly well arranged in every respect, the repetition of important notes at the foot of each table being specially commendable. Altogether the book, which comprises about 700 pages, is undoubtedly a manual of which it would be almost impossible to exaggerate the practical utility. The city address of Messrs. Redpath, Brown and Co., Ltd., is 22, Laurence Pountney Lane, E.C.

New Series of Rotary Snap Switches.

An interesting line of rotary switches has recently been placed on the market by the British Thomson-Houston Co., Ltd., of 77, Upper Thames Street, E.C. These switches have certain distinctive features which are worthy of note. In their design the weight of moving parts has been reduced to the minimum consistent with durability and proper current-carrying capacity. This feature greatly increases the wearing qualities of the switch, by diminishing the force of the hammer-blow in the "on" and "off" movements.

Bases of the best quality porcelain and ebonised handles with self-contained springs are used, and the employment of flat binding posts is a new and excellent feature, giving easy access to the binding screws in however confined a position the switch may be fixed, as the screw-driver works from the front of the switch, at right angles to the wall. The danger of cutting the wires at the screw contacts is also removed. The switches are supplied with both nickel (fibre insulated) and porcelain covers. Single and double pole switches are supplied for 100-250 volts and 250-600 volts, with current carrying capacity ranging from 3 to 20 amperes, and with or without indicating dial in the cover. There is a three-way switch in three sizes; 3, 5, and 10 amps. 100-130 volts, or 1, 3, and 5 amps. 200-250 volts. There is also the three-circuit rotary switch for automobile lighting, suitable for use on voltages up to 250, and supplied with or without indicating dial. It is arranged with three circuits so that the head-lights, tail-light, and interior lights of a motor car can be switched on or off separately or together.

Another type—the series parallel three-heat switch—provides a simple and reliable means of regulating the heat of radiators or cooking devices. It is supplied in two sizes, 10 and 20 amperes, and can be used on voltages up to 250.

LEGAL.

A Point of Insurance Law.

In the Court of Session, Edinburgh, last week, Lord Dewar issued judgment in the action in which the Clydebank and District Water Trustees sued the Fidelity and Deposit Company of Maryland, 17, Palmerston House, Old Broad Street, London, for payment of £5,000. It ap-

peared that in the month of March, 1909, the defenders issued an insurance policy or contract-bond in favour of the pursuers guaranteeing them against any loss to the extent of £5,000 which they might sustain through alleged delay by a firm who contracted with the pursuers to construct certain works in connection with a new water supply for Clydebank district. The defence was that the pursuers failed to fulfil the conditions incumbent on them under the contract-bond, and that the defenders were accordingly freed from their obligations thereunder. The Lord Ordinary assailed the defenders with expenses. He said that after careful consideration of evidence he had reached the conclusion that the defence stated was well founded. The contractors did not strictly fulfil the stipulations of the contract, as the work was not finished at the date when it should have been completed. But the pursuers did not intimate to the defenders that the contractors were not carrying out the contract, and as they had not done so his Lordship did not see how they could insist on their claim.

INTERESTING DISCOVERY AT POMPEII.

Signor Adolfo Cozza, the archæologist, proposed some time ago to the Italian Ministry of Public Instruction to carry out excavations at Pompeii with the object of tracing the site of the port where, in his opinion, three-fourths of the population sought escape from the eruption of Mount Vesuvius, hoping that the Roman fleet would be able to remove them into safety. The "Times" Rome correspondent now records that after various try-pits had been sunk Signor Cozza discovered plaster and concrete and finally a road leading to the sea showing signs of the passage of wheels. The masonry-work of a harbour was then unearthed with the marks left by the waves. The port of Pompeii which has just been discovered is at a distance of about 1,300 yards from the existing sea-shore and about 700 yards from the ruined city. It is covered with a layer about 23 feet deep, consisting of earth, lava, ashes, and lapilli. Great importance is attached to the discovery, and the Press urges that the work of excavation shall be carried out actively, as it is believed that the skeletons of the majority of the population of Pompeii, as well as treasures of gold and works of art, will be discovered.

TRADES TRAINING SCHOOLS.

The annual report of the judges on the work done at the Trades Training Schools of the Worshipful Companies of Carpenters, Loriners, Painter Stainers, Plaisterers, Tylers and Bricklayers, and Wheelwrights, at 153, Great Titchfield Street, W., contains also what are somewhat pedantically called the "syllabi" of the classes to be held during the session 1913-14. As Mr. Herbert Phillips Fletcher, F.R.I.B.A., is the director of the schools, it need not be said that the building trades are adequately provided for. Specimens of work done in the schools' shops are illustrated with excellent half-tone engravings and afford convincing demonstration of the efficiency of the instruction that is there imparted with the object of "trying to get the craftsman really to grasp the fundamental principles" underlying the trade which he follows for his living and to counteract as far as may be the deadly monotony produced by modern machinery."

GEORGIAN INTERIOR DECORATION.

We reproduce on this page two photographs of Georgian interior decoration at Marble Hill, Twickenham. This house was built in 1724 for the Countess of Suffolk, a favourite of George II. The design has been attributed to Robert Mavis, but the interior detail follows very closely the work of Colin Campbell and William Kent, both protégés of Lord Burlington, who is stated to have been consulted in regard to this *bijou*.

The staircase hall has its walls divided into panels by enriched mouldings of stucco, and at the landing level is a series of bold relief ornaments of eminently characteristic detail in the same material. Above, in the centre of each wall, is a rectangular compartment, framed with a moulded architrave and surmounted by an open pediment, bearing in the centre a cartouche and oak-leaf drops. Walls and ceiling are united by a nicely-proportioned cove, terminating in a moulded and enriched band to form the ceiling compartment, which is painted with clouds and circling *amorini*. The walls are grained throughout, the panels being highly figured with the beauties of walnut or amboyna. The effect of the graining is remarkably fine, and the craftsworker who executed it must have been a man of exceptional ability.

The carved wood bracket illustrated is one of a pair to an alcove in a bedroom in the house. It is a very vigorous



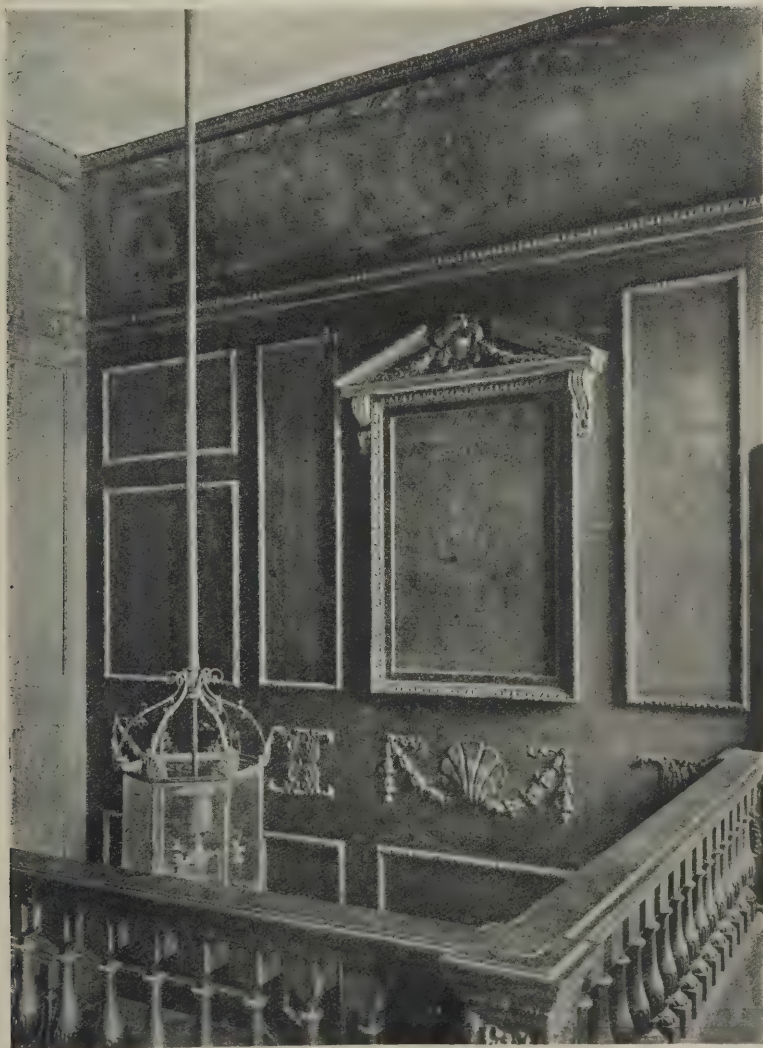
CARVED WOOD BRACKET, MARBLE HILL, TWICKENHAM.

example of its kind, though now in a somewhat dilapidated condition.

The Marble Hill estate was acquired by the London County Council some years ago in order to preserve the view from Richmond Hill, and the house is now used as a refreshment house.

NEW ORGAN FOR THE BISHOPSGATE INSTITUTE.

An organ which is being erected in the large hall of the Bishopsgate Institute is to be a four-manual organ with ninety-two stops, costing upwards of £2,300. It is being built by Messrs. Brindley and Foster, of Sheffield, under the advice and supervision of Sir Frederick Bridge, and it is to be completed by October 21st. A special feature will be the carillon or bell stop, which is being constructed by the Church and Carillon Bell Co., Ltd., of Berners Street, W. The bells will be worked from the console by an electric action, invented by Dr. T. Lea Southgate. A case suitable to the hall has been designed by Mr. Franklin Gadsdon, architect to the governors, and is being made by Messrs. Ogilvie and Co., of Islington. The organ will be blown by an electric motor.



DETAIL OF STAIRCASE HALL, MARBLE HILL, TWICKENHAM.

REVISING A CITY'S BUILDING CODE.

The commission recently appointed by the Board of Aldermen to consider the revision of New York City's building code has a most important undertaking in hand. The sum of money appropriated—\$15,000—to cover the expenses of the investigation for the revision appears altogether too small when the great number and variety of interests involved are considered. The code regulates such a great range of building operations, and each operation must be covered for so many varying conditions, that the difficulty of establishing a definite, economical, and satisfactory set of working rules is readily seen. Its interest for us resides chiefly in the means of comparison it affords with respect to building regulations in our own cities.

Steel Skeleton Buildings.

The present requirements for buildings having a steel skeleton are unnecessarily severe in respect to the thickness of walls required. Where the exterior walls are supported at every floor level, as they must be under the present code, it does not appear to be necessary to increase the thickness arbitrarily at certain intervals from the top down. The centres of the steel columns for this type of construction are always established at a fixed distance from the outer face of the walls, and this distance is taken at an amount such that the exterior walls will give the necessary fire protection to the columns and wall supporting framing. At a point 75 ft. down from the top the walls are increased 4 in. in thickness, and they are further increased by 4 in. for every additional 60 ft. or fraction thereof of height. These increases are all added to the inside of the walls, thereby giving no increased fire protection for the steel frame from fires on the outside. Moreover, no increased protection for the steelwork from a fire on the inside is thus provided, for the steelwork must be protected from the interior, according to the requirements of the code, by suitable protection provided especially for the members of the frame.

Wall Thickness.

If the outer walls of buildings were solid, without openings for windows and doors, they would be of great assistance in resisting wind and other lateral forces. But they are far from solid; in the lower stories of buildings of the best class almost the entire wall will be replaced by glass and sheet metal. The code requires that the steelwork shall be designed to resist all wind and lateral forces. It is not logical, therefore, to require increased wall thickness for this purpose, especially as the walls are omitted where most needed if they are to be depended upon to resist wind pressure.

The increased wall thickness is very expensive to the owner for many reasons, but chiefly because of the great amount of steel required to carry them, the loss of floor space which they entail, and the excessive size of the grillages which they are sure to make necessary.

Curtain Walls.

One of the worst effects of the requirement of increasing the thickness in the skeleton wall for buildings is to encourage the excessive use of curtain walls. That there is discrimination in favour of curtain walls may readily be seen. According to the present code, the requirements for the thickness of walls of the two classes are practically the same. The curtain wall is assumed to carry its own weight, but is

made to depend for lateral stability on its connection to the steel frame, no increase being required in the steel frame to supply this lateral support. The load brought on the foundation bed under the footings of curtain walls cannot be properly distributed, as the footing cannot be made central with respect to the wall when the face of the wall is on the property line; moreover, the unit pressures are generally not the same as used for the steel column footings. In those locations where the wall footings cover the footings of wall columns the problem of making a uniform distribution of load on the foundation bed is practically impossible. Buildings with curtain walls, therefore, due to the lack of unity between the walls and the remainder of the structure, are likely to develop cracks in the walls and cracks in ceilings and floors adjacent to such walls.

Reinforced Concrete.

Turning to concrete a rapid growth in its use, as reinforced concrete, has occurred in building construction in New York in the past decade. For cinder concrete—a material very extensively used for floor slabs—there does not appear to be any thoughtfully prepared set of rules. There should be given a clear specification covering the proportions of the ingredients of concrete for the various unit stresses to be used in designing and for the weight per cubic foot of the mixture. It may entail considerable study to make a definite requirement for this material.

Structural steel is a well-known material. Proper methods of manipulation in manufacture and erection may be definitely stated. It is a most reliable material and the methods of stress calculations, moreover, are subject to great refinement. In view of these facts it might be well to consider a moderate increase in the unit stresses permitted in the present code.

It appears that, on the points just discussed, revision should be made. The same thing may undoubtedly be stated as to a vast number of other points, but those noted come home so strongly to the structural engineer that it has been thought worth while to emphasise them. If changes of similar moment can be found in other sections of the code, and they probably can be, the proportions and magnitude of the task of the revision committee can readily be appreciated.

UNIVERSITY OF LIVERPOOL SCHOOL OF ARCHITECTURE.

In the prospectus for the session 1913-14 of the School of Architecture of the University of Liverpool we are reminded that the school was founded to provide student-architects with a full liberal and professional education of university standard, and that the teaching of design is based upon the methods of the *Ecole des Beaux-Arts* at Paris, and on those of the American schools of architecture, adapted to meet our somewhat different requirements. That is to say, that while the student is taught design on a basis of monumental planning in order to equip him with the means by which to approach with confidence the larger problems which architecture presents, an attempt is also made to give him that intimate knowledge of materials and construction which distinguishes the best English work. After his combined study, in the first year, of simple construction and the elements of architectural proportion, the student passes, in his second year and in his later work, to a progressive series of designs both of a constructional and a monu-

mental character. For the latter he makes carefully rendered drawings, and for the former all the detailed and working drawings necessary for a contract.

The school courses lead to the University degree of Bachelor of Architecture (B.Arch.), to the University Diploma in Architecture, and to University certificates. A first-class certificate, obtainable at the end of the first half of either the degree or the diploma course, procures exemption from the Intermediate examination for Associateship of the Royal Institute of British Architects; while in the second year of their course for the certificate students are able to prepare the four designs now required by the Institute as testimonies of study for the Final examination, and the Royal Academy also exempts such students from probationary work before entering their School of Architecture.

There is a Ravenhead entrance scholarship of £30 a year, tenable for two years, and some of the entrance scholarships of the University are open to students taking degree courses in the School of Architecture. A Holt travelling scholarship of £50 for one year is awarded for designs and measured drawings; and in some years additional travelling scholarships are provided; while the Liverpool Garden Suburb Tenants, Ltd., offer prizes to be competed for in the School for blocks of houses to be erected on their estate at Childwall.

An annual publication, "The Liverpool Architectural Sketch Book," illustrates the best work, both in measured drawings and designs, of present and past students and of others connected with the School; and the Department of Civic Design issues quarterly "The Town Planning Review." There is a students' Architectural Society which meets at intervals to read papers and discuss matters of architectural interest.

The staff of the School of Architecture is as follows: Roscoe Professor of Architecture (in charge of the School), C. H. Reilly, M.A., F.R.I.B.A.; Lecturer in Building Construction, L. P. Abercrombie, M.A.; assistant lecturers and studio instructors, L. B. Budden, M.A., A.R.I.B.A., and H. A. Dod, M.A.; Reader in Ecclesiastical Architecture, G. Gilbert Scott, F.R.I.B.A.; professor of drawing, S. D. Adshead, M.A., F.R.I.B.A.; teacher of modelling, C. J. Allen; Demonstrator in Building Materials, H. J. Whitby, A.R.San.I.; Professor of Classical Archaeology, R. C. Bosanquet, M.A.; Harrison Professor of Engineering (Graphic Statics), W. H. Watkinson, M.Eng., M.Inst.C.E., etc.; Lecturer in Reinforced Concrete, H. E. Martin, B.Sc., A.M.I.C.E. Professor S. D. Adshead, M.A., F.R.I.B.A., is in charge of the Department of Civic Design and is assisted by an eminent staff of collaborators. Prospectuses of both departments can be obtained from the Registrar, the University, Liverpool.

NEW BOOKS.

Messrs. Macmillan announce the early publication by them of the following new books: "The Nine Minoan Periods," and "An Atlas of Knossian Antiquities," by Sir Arthur Evans; "The Principles of Greek Art," by Professor Gardner; "Athens and its Monuments," by Professor Charles H. Weller; "Studies in Water Supply," by Mr. A. C. Houston; "Land Surveying," by Professor Henry Adams.

A CRITICISM OF THE MIDDLESEX GUILDHALL.

Referring to the new Middlesex Guildhall, which is nearing completion opposite Westminster Abbey (from designs by Messrs. Gibson, Skipworth, and Gordon), "The Times" says: The new Middlesex Guildhall is, like most of our public buildings, an attempt to solve an insoluble problem. The problem is to make a building regular in shape, prosaic and practical in its uses, and not very large in size impressive by the addition of architectural features. That was the problem of the Houses of Parliament, except that they are very large; and, like the Houses of Parliament, the new Guildhall is Gothic in its ornament and features, but not more so in its structure than many Government offices. One must confess, however, that many real Gothic houses—as, for instance, the famous house of Jacques Coeur at Bourges—are not really Gothic in structure. For the Gothic is a style developed in church-building, and its structural features cannot easily be applied to houses. The Gothic ornament of the Guildhall is not really more irrational than the ornament of most sumptuous houses of the fifteenth century. In them it was a survival, in the Guildhall it is a revival; and, after all, the whole of Renaissance architecture is a revival. . . . Now the features of the new Guildhall are for the most part irrational, but they are varied cleverly and well contrasted with bare spaces of wall instead of being spun all over the building. Also there is far more spirit in their execution than in the execution of most Renaissance detail or of the Gothic detail of the Houses of Parliament. In this matter we have made a great advance even in the last ten years. Our very masonry looks less machine-made, and the carving, especially of leafage, has real life and invention in it. In fact, whatever one may say against the new Guildhall, and there is a good deal to say against it, it looks as if it had been designed and built with some enjoyment, and as if its absurdities expressed a genuine taste and were not merely sentimental imitations of the absurdities of the past.

Having said so much, one may point out that it would look much better if some of these absurdities were not there. For instance, the highest row of windows on the south and east sides are ornamented at the top with niches and pinnacles and tracery so that they are violently in contrast with the square-headed plain windows below them. On the south side, too, some of the upper windows are without this elaborate headress, and one has only to look at them to see how much better the whole façade would look if the other windows were like them. Again, the tower, which is the chief feature of the eastern façade, is boldly designed, with a good contrast between its rich carving and plain masses of masonry, but it would look much better without the two large and irrelevant niches in front of it. On the west side there is a most fantastic doorway ornamented with another large niche, and this compares very ill with the plain doorway to the north of it on the same front. Then the Gothic tracery of the balcony on the south front is so large and heavy that it draws the eye away from many pleasant and quiet details elsewhere. In fact, on every side one feels that the architect has designed a simple and sensible façade, and has then enlivened it with "features" as some

writers think it necessary to enliven straightforward prose with incongruous flowers of speech. No doubt his duty was to produce an impressive building, and he could not do this in the only way it can be successfully done with buildings of that kind—namely, by the use of great blocks of masonry such as we see in the Florentine and Roman palaces. We cannot, or will not, afford such masonry nowadays, and therefore our architects have to do what they can with "features"; and they are not to be blamed for our parsimony and love of display.

The great frieze on each side of the main entrance of the eastern façade is good in its general effect, but architectural sculpture of this kind will not have the spirit and propriety of the real Gothic work until the sculptors themselves are stonemasons. Here the sculpture is copied from plaster casts, and it looks like a copy. It is, however, far better in design than most sculpture on our public buildings, and the leafage, as we have said, is better still.

Inside the building some of the smaller rooms without architectural features are charming, and the plaster decoration of their ceilings is both good in design and spirited in execution; but the Council Chamber is marred by architectural features too large and prominent for its size, and the first court is still worse in this respect. The second court, where there is less effort to be impressive, is far better. Indeed, the whole building, in its faults and in its merits, teaches the lesson that if we are to have good architecture we must let our architects do the best they can with good material and simple planning. It is the demand for impressive features that makes them spoil many well-designed buildings with irrelevant ornament.

NEWS ITEMS.

New Schools, South Shields.

The new St. Bede Catholic Schools, which have been built at South Shields at a cost of £7,000, comprise two storeys with accommodation for 500 children. The contractor was Mr. D. Glen, of Jarrow, and the architect Mr. James Page, of South Shields.

Waterproofing Basements and Reservoirs.

The New Club, Mansfield, has had a basement floor which stood in waterlogged ground successfully treated with a Pudloed cement rendering on top of concrete. We are informed that the Gloucestershire County Council have specified Pudlo for lining reservoirs.

Progress with the Usher Hall.

The Usher Hall, Edinburgh, has now been in course of erection for more than two years, the foundation-stone having been laid in July, 1911. The huge internal scaffolding having now been removed, an opportunity is afforded of viewing the interior. Rapid progress is being made with the joiner work, while the large organ is ready for installation. It is anticipated that the building will be completed by the end of the year. Messrs. Stockdale Harrison and Sons, of Leicester, are the architects.

Cranes for the London County Hall.

Messrs. Butters Bros. and Co., Crane Builders, of Glasgow, have just completed what is stated to be the largest electrical derrick crane yet constructed for use in building construction work. This crane has a jib

135 ft. long, capable of lifting ten tons at a radius of 110 ft. and five tons at a radius of 125 ft. The framework—upright, diagonals, sleepers, and jib—is entirely constructed of steel lattice work. Messrs. Butters are erecting this crane on a staging 76 ft. high on the site of the new London County Hall, Westminster. As well as this large crane, Messrs. Butters are erecting eight 5-ton cranes, with 95-ft. jibs, on stagings 120 ft. high, and are also supplying two electrical locomotive cranes, lifting their load of three tons at 40 ft. radius, for the same contract.

Cardiff's Old Town Hall.

The old Town Hall, Cardiff, is now in process of demolition. Without any particular historical interest, the town hall is remarkable as one of the chief works of Sir Horace Jones, a former architect to the City of London and designer of the Griffin in the Strand, the Smithfield and Leadenhall Markets, and who, with Sir J. Wolfe Barry, was responsible for the Tower Bridge. There is considerable feeling in Cardiff that the corporation should acquire the frontage, a fine specimen of Grecian work, and re-erect it in Cathays Park.

An Illustrated Guide to Westminster Cathedral.

The Westminster Press, of 11, Henrietta Street, W.C., have just issued a handy guide (price 1s.) to Bentley's great building, Westminster Cathedral. The book has been edited by the Rev. Herbert F. Hall, Cathedral Chaplain, and is illustrated with pen drawings by Mr. Hanslip Fletcher. A full description is given of the architectural structure and decoration, in addition to an account of the inception and growth of the scheme, the divine liturgy, and the cathedral music.

Associated Portland Cement Dividend.

The directors of the Associated Portland Cement Manufacturers (1900), Ltd., announce the payment of a dividend on the Ordinary shares—the first since the formation of the undertaking over thirteen years ago. The dividend will be at the rate of 5 per cent. for the year ended June 30, a balance of about £51,500 being carried forward after appropriating the sum of £116,291 for depreciation, reserves, and sinking fund. The company was formed to amalgamate the businesses of about thirty firms engaged in the manufacture of Portland cement. The capital was fixed at £5,000,000, divided into 250,000 £10 Ordinary and 250,000 £10 Preference shares.

A Colonial Architects' Association.

The latest Colonial association to be formed is "The East Africa Architectural Association" for Architects in British East Africa and Uganda, which came into being in July last. The officers for the first session are as follows: President, Mr. R. M. Geater; vice-president, Mr. W. M. Robertson; hon. treasurer and secretary, Mr. Harold E. Henderson, Lic.R.I.B.A. (late hon. sec. of the York and Yorkshire Architectural Society); Council, Messrs. Gow, Tate-Smith, Le Roux, and Hurler. Britain's youngest colony is forging ahead rapidly, and many important buildings have been started which compare very favourably with the more important ones in South Africa. One of the first questions which the Association has in hand is the registration of Architects in the two Protectorates, and a Bill is being formulated for that purpose at the present time.

MOTOR NOTES FOR BUILDERS AND CONTRACTORS.

A Daimler Four-ton Truck Suitable for Builders.

The Daimler Company have for some time past been specialising in a 4-ton truck which should be of considerable use to any firm engaged in the building trades. The writer has just finished a detailed examination of one of their trucks and also conducted some exhaustive tests under full load over good, bad, and indifferent roads, both hilly and otherwise. The Daimler acquitted itself in a very satisfactory manner and can safely be recommended where heavy work is required. The specification of this particular truck is as follows:

Engine.—The engine is of the Daimler sleeve-valve type, four cylinders, bore 110 mm., stroke 150 mm. The cylinders are of a special grade of iron and are cast in pairs. The engine develops over 40 brake h.p. at 1,000 r.p.m., and considerably greater output is obtained at higher speeds. The lubrication is by a multiple plunger pump, which delivers oil to adjustable troughs placed under each connecting rod. An efficient and simple carburettor is used, the design of which is such that it will work satisfactorily under all conditions of climate.

Ignition.—Ignition is by Bosch dual high-tension magneto, with battery, coil, and switch.

Radiator.—Is of very simple construction in three parts, arranged so that they may readily be detached for replacement or cleaning. The water is circulated by a centrifugal pump, and cooling is assisted by a large belt-driven fan.

Clutch.—The clutch is of the conical type, the inner member being faced with leather. The mechanism is self-contained, very simple in design, and can readily be removed.

Gear Box.—The gear box fitted to the Daimler truck is of the three-speed chain type, giving forward speeds of 5 and 9.4 m.p.h. on the lower ratios, also 16.1 m.p.h. on the direct drive. The reverse is obtained by means of spur gears and is at the rate of 5 m.p.h. at the normal engine speed of 1,000 r.p.m.

Spur gear box.—A four-speed spur gear box can be fitted at purchaser's option; forward speeds, first 4 m.p.h., second 7.7 m.p.h., third 12.1 m.p.h., and on the direct drive 16.1 m.p.h.; reverse 6 m.p.h. Spur gears are of exceptionally large dimensions and are so arranged as to give the highest degree of efficiency and silence.

Back Axle.—The back axle casing is formed of two massive drawn-steel tubes securely bolted to a cast-steel centre. The road wheels are carried on the ends of the sleeves and are driven through a floating shaft. The worm, worm wheel, and differential are of large proportions and are supported as a complete unity from a top cover which, when removed, leaves the cast-steel casing and hollow axle to support the vehicle; thus to remove the worm gear it is not necessary to take down the back axle.

Brakes.—Two independent brakes are fitted, worked by pedal and hand lever respectively; the brakes operate on separate drums bolted to the rear wheels; the braking stresses, therefore, are not transmitted through any part of the mechanism.

Frame.—The frame is of flitch plate construction; each member consists of special nickel steel, riveted to an ash beam and braced by cross-members of similar construction.

Steering.—The steering is on the Ackerman principle, the steering centres being located in the plane of the tread of the tyre, thus relieving the steering gear of the stresses due to inequalities of road surface, etc. The steering is operated by worm and worm wheel and is extremely easy to handle.

Front Axle.—The front axle is a high-grade steel stamping, the section being proportioned so as to secure the maximum strength with minimum weight.

Road Wheels.—The wheels are of cast steel and are arranged to run on bearings mounted on the tubular axle casing.

Tyres.—Solid rubber, twin on rear wheels, single on front.

Wheel Base, 13 ft.

Wheel Track, 5 ft. 8 in.

English Timber.

In the supplement to the R.I.B.A. Journal, architects desirous at any time of procuring English oak or any other English timber are invited to write to the honorary secretary of the English Forestry Association, Farnham Common, Slough, Bucks. This is not a trading association and does not buy nor sell timber. Its objects are to assist consumers and those desirous of procuring English timber to do so with the least possible trouble, and to remove some of the handicaps from which English timber at present suffers. The honorary secretary will welcome any inquiries from architects or consumers and give all information as to where supplies of English timber can be obtained.

PROJECTED NEW WORKS.

Nottingham School of Art Enlargement.

The Nottingham School of Art is to be enlarged at a cost of £3,500.

Pershore Abbey in Danger.

Pershore Abbey, Worcestershire, is stated to be in so serious a condition that it must be closed for public worship until extensive works of reparation and restoration can be carried out.

Huge New Hotel for New York.

The biggest hotel in the United States, if not in the world, is to be erected shortly on the east side of Broadway, between Forty-fourth and Forty-fifth streets, New York. The building will contain 1,800 rooms and will be twenty-four stories high—excluding three basement and sub-basement floors. It is to be completed and furnished ready for guests in less than fifteen months, and is to cost £2,500,000.

New Bathing Pavilion, Sea Wall, etc., at Margate.

The Margate Town Council have accepted a tender amounting to nearly £5,000 for the erection of a new bathing pavilion, shelters, etc., on the western side of the town. A scheme for the provision of new tennis courts, bowling greens, etc., at a cost of nearly £1,300, has also been adopted. It is proposed, also, to construct a new promenade and sea wall at Westbrook at a cost of £12,000.

Railway Station Improvement at Llanelly.

The contract for a large scheme of extension at Llanelly Railway Station has been placed by the Great Western Railway Company with Mr. George Mercer, and operations are to commence immediately. It is understood that the total cost will be £5,000. The two platforms are to be rearranged and the "bay" which now serves as the terminus of the Llandovery branch is to be covered over. The company have also decided upon increasing the accommodation at the goods depot.

L.G.B. Inquiries.

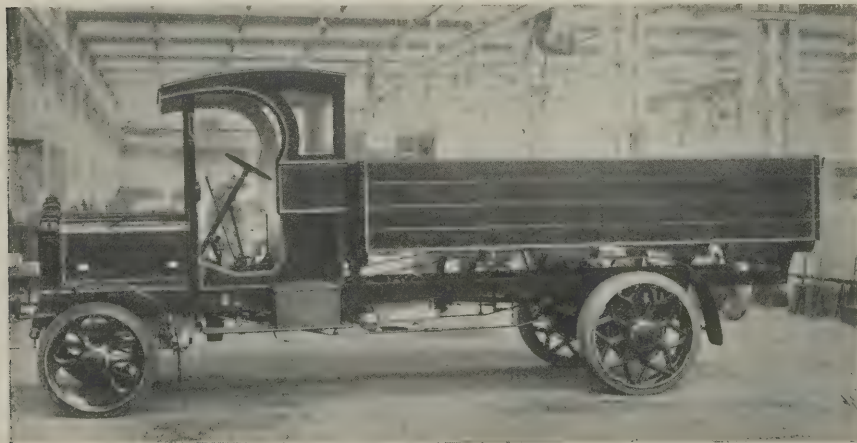
The L.G.B. have held or have decided to hold inquiries into proposed expenditure by public bodies as follows:

Water Supply.—Chester Rural District Council, £1,500 for Dunham-on-the-Hill; Lexton and Winstree Rural District Council, £2,200 for Stanway (September 16th); Kidsgrove Urban District Council, £1,000 (September 17th); Northwich Rural District Council, £1,937 (September 18th).

Sewerage, Drainage and Sewage Disposal.—Durham Rural District Council, £2,100 for Ludworth; Ashington Urban District Council £2,000 (September 17th); Durham City Council £1,500 (September 19th).

Street Improvements.—Plymouth Borough Council, £2,010 (September 10th); Devonport Borough Council, £1,085 (September 11th); Newcastle-under-Lyme Borough Council, £1,000 (September 19th).

Various.—Plymouth Borough Council, electricity plant extension, £5,500 (September 10th); Bishop Auckland and other Councils, joint burial ground extension, no amount stated; Ashington Urban District Council, laying out Hirst Park, £2,000 (September 17th); Amble Urban District Council, slaughter house (erection and site) £2,500; Newcastle-under-Lyme Borough Council, gasworks plant, £1,000, bridge widening, £500 (September 19th).



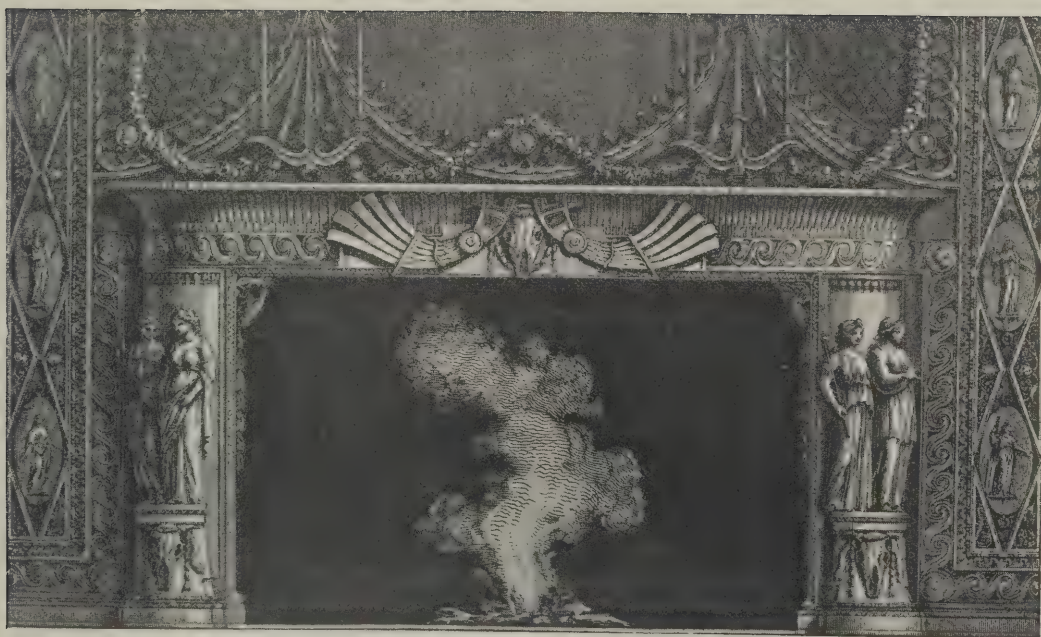
DAIMLER 4-TON TRUCK SUITABLE FOR BUILDERS.

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(From Piranesi.)



PERSEPOLIS. FROM A DRAWING BY A. C. CONRADE.

(See page 308.)

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CAXTON HOUSE, WESTMINSTER.

VOLUME 38 No. 976

Some Thoughts on English Sculpture.

A TRADITION of singular vigour and beauty was inherited by the "marblers" of the seventeenth century, a race of craftsmen more skilful than masons, in that their work was done in various coloured marbles, and therefore more precious, and that it included carving of human and other figures, of ornament and the rich armorial bearings of gentlemen. How the mediæval "marbler" worked upon monumental alabaster can be seen in a hundred old churches, where knight and lady lay stretched out through centuries to "hear the blessed mutter of the Mass," and still lie in attitudes of exquisite repose. They are seemly memorials to the dead, these old tombs, where ancient memories are enshrined, of great deeds and the short crowded life of man. But they also enshrine rare art. That it is anonymous counts for nothing. For the "marbler" himself, as for the humbler craftsman—the lapidary who cut the inscriptions, wherein the brief tale is embroidered with the eulogy death claims for the vanquished—oblivion has blotted out their names. If art offers immortality as its great reward, its supreme reward is its daily practice.

At the time of the dissolution of the monasteries, early in the sixteenth century, art did not cease to develop. The last fair wayward flowering of the mediæval spirit under the Tudors, its phantasy and splendour, as it shows in Henry VII's chapel, was a blossom nourished by the sun of a belated St. Martin's summer. The plant had been strongly grafted, however, with another flower—exotic, from the South.

In Westminster Abbey the two flowers are seen side by side, the fair exotic and the exuberant native plant. It is curious that Henry VII's chapel should contain a thing so alien to it in spirit as Torrigiano's tomb, without any sense of incongruity. Yet so it is. Between the old and the new there is no break; the junction is invisible. The New Learning stood fully expressed in the work of Torrigiano, but it was a plant of slow growth, and it was a century before native artists reached his level. That century illustrates "the strange mixture of ideas, characteristic of Tudor England, its curious interest in the New Learning, side by side with its invincible affection for the fancies of mediævalism.

"Again and again the spirits of the old world and the new assert themselves side by side in the work of this time, at first without conflict and yet without fusion, much in the manner of two different types of beauty, each setting off the other, unlike but yet in harmony."

Nicholas Stone early in the seventeenth century brought the art of statuary to the level of the Italian, as Inigo Jones brought architecture to the level of Palladio. Stone was "marbler" and mason and architect, and was in many ways the inheritor of a tradition of singular beauty and vigour. The mediæval figure under his hand puts on grace and variety; it is given the poses of devotion and slumber rather than death. He knows how to

"Let the bedclothes for a mortcloth drop
Into great laps and folds of sculptor's work."

But it was not Stone alone who kept the torch of sculpture burning; a great band of artists, who had not yet sold their birthright in monuments to the monumental mason, went up and down the country filling the churches with magnificent tombs. There is hardly an ancient church that does not possess a Renaissance tomb, with its gorgeous heraldry, its festoons of marble flowers, its carved children, smiling or weeping, its sad beautiful effigies. Sometimes an old mediæval fancy, in the shape of the skeleton lying on a slab beneath the memorial figure, strikes one like a *memento mori* in the midst of a feast, but invariably the symbols are graceful—figures of Virtues and the like, which afforded great scope for the sculptor. But the portrait figures are perhaps the best, and although it is impossible to say how like they are to the originals, they have the quality of reality.

In the history of English sculpture a few names alone survive. There are Francis Bird and Caius Gabriel Cibber (the former the author of the figures above the pediments of St. Paul's, the latter of the bronze figures which stood at the gate of Bedlam), Bushnell, Le Sueur, Grinling Gibbons, Roubilliac, Flaxman, Stevens, among others, names which should be household words, but names whose significance is entirely missed. Gibbons alone of them all was adequately employed. Perhaps the seventeenth and eighteenth centuries were more lavish in their support of sculpture than later days. At any rate the record of the nineteenth century is singularly depressing. Sculpture then soared as if borne on some wooden Pegasus, and filled galleries with imitations of the Antique. At this time, too, sculpture sold its birthright to the monumental mason. It is now beginning to realise its loss, and is trying to regain this, its legitimate province. But it requires the support of the public to attain this end, and this is hardly forthcoming until sculpture makes a great effort to show what it can do. Whether the Sculptors' Society can do this remains to be seen. But they can do a great service to their art by organising exhibitions and by a wise discrimination in their recommendations when they are consulted about the employment of sculptors. There is much to be accomplished, and once the public is assured that it will be done well it would not be niggardly in its support of sculpture. The example of Mr. D. A. Thomas, who has given a sum of money to have statues executed for the Cardiff City Hall, is full of hope for sculpture.

In these days of societies, a society for the filling of niches in London does not seem too idealistic to be realised. It is distressing to contemplate the empty niches of the metropolis. One is almost given to think that niches are an architectural expedient to house birds. Certainly as long as the empty niche is unfilled architecture remains incomplete. It is a great opportunity for sculpture to thus fill out the theme of building. There is no reason why a niche should not be used to hold a memorial. London streets are obviously not the place for them, and we seem to have an invincible objection to placing them in gardens. The niche has another advantage—on the score of cost. A

statue in Portland stone or marble would cost about one-third of the price of the usual bronze figure, with its granite pedestal.

If one considers the number of men who have by their superior abilities made London great beyond all other cities of the world the number of niches is all too small.

Looking back over the history of sculpture in England one has to think to place the names in relation to work executed. Where is the work of these men hidden away? What has been the result of their brief sojourning on the earth?

It is of no use to consider this if we do not profit by it and use our knowledge to erase a blot on our national character—the disregard of sculpture. Architecture and painting visibly flourish, but it cannot be said to be good for art until the triple arts flourish together.

X.

The Canberra Complication.

IT is being realised through experience (the necessary vigour of imagination having been lacking) that the creation of a commonwealth capital city is not an enterprise that should be undertaken with a light heart—nor with a light purse. Really the Australian Government has acted throughout with extraordinary ineptitude, even for a Government. It deliberately deprived itself of the best architectural advice, and denied itself the advantage of obtaining designs from the organised architects of the world simply because it was too stiffnecked to recede from a false position. Then, from the painfully narrowed field of choice, it had perforce to accept the work of outsiders—that is, of men who, by reason of their nationality, were outside the Empire. As a matter of art, this is no great disaster; but as a matter of sentiment it carries with it a considerable degree of poignancy. The affair went from bad to worse when an attempt was made to pick out for use the best features of what a lay writer calls the “premeditated” designs. One hardly knows how to characterise such procedure. The kindest thing that can be said about it is that from first to last the whole thing has been badly bungled. Of course the attempt by the Home Affairs Department to devise a scheme of their own, made up of “points” from the premiated designs, was doomed to produce a sorry hotchpotch. Equally of course this miserable result has provoked a storm of adverse criticism. Having brought matters to this pretty pass, the Government are now asking Mr. W. B. Griffin, the Chicago architect who got £1,750 for the first-premiated design, to go to Australia to help them out of the trouble. It is to be imagined that he will think twice before undertaking so unenviable and so invidious a task.

The Edinburgh Government Buildings Question.

Lord ROSEBURY'S admiration for the Calton Jail buildings, a matter in which, as we said last week, we have the honour to disagree with him, is not shared by Sir Rowand Anderson, who puts forth a reminder that, years ago, he strongly condemned the building. The architect of the Calton Jail, he said, “wanted a type to work from, and he chose the castle. But as a castle is a place to keep people out, and a jail to keep people in, see what a deplorable result: one of the finest sites in the world covered with a toy castle, devoid of expression and utterly meaningless. The highest tower of all, for the sentinel to scan the surrounding country and give notice of any one approaching, is, I believe, a chimney or ventilating shaft; and the portcullis seen at the principal gateway to the east will move neither up nor down, and is placed where no such thing should be in a veritable castle. The whole thing is an evident and a palpable sham, not even rising to the level of theatrical scene-painting.” Somewhat inconsistently—

especially after clinching his criticism with the deduction that Calton Jail is an example tending “to corrupt the public sense of what is right and wrong in building”—Sir Rowand does not favour its immediate extinction. Turning his back on the abomination, he proposes another site for the new Government buildings. These, he thinks, might be more appropriately erected in St. James's Square, where there would be room for extensions, and where they would be in close touch with the Register House and other Government offices. The St. James's Square site would no doubt be excellent, but its selection would allow Calton Jail to perpetuate its corruption of the public taste.

The Growing Importance of the Railway Station.

SOME minor town-planning points, which are, however, of no small practical utility, are mentioned by “An Englishman in Germany,” who is recording, in the “Manchester Guardian,” his impressions of Berlin. His first point is, that the railway station is, to a stranger, the most important building in a town. He does not make—and we hasten to remedy the omission—the deduction that it ought therefore to be treated architecturally; but he records his grateful appreciation of the convenience of finding, as one does at almost every considerable railway station in Germany, a large-scale map of the town, set up so that it can be seen immediately on arrival. To this is added, in many cases, an orientation board, with a short list of the chief walks in the district. In the central station of Frankfurt-on-Main there is, at the end of the arrival platform, a plan of the town on which not only every street but every house is marked, with its number. In the central hall of this station there are also boards giving the addresses of municipal offices, churches, schools, swimming baths, museums, and other public institutions, a directory of doctors and other professional men, and a directory of shops and business houses grouped according to trades.

IMPORTANT ANNOUNCEMENT.

WITH the next issue, several important alterations will be made in the contents of this Journal which, we think, will greatly add to its interest and materially increase its value. The chief new feature will be a series of six flat unfolded plates printed on art paper. We have reason to know that many readers have a system of filing illustrations which they desire to keep for future reference. The loose plates, in the form we intend to give them, will be found exactly to meet the case. They will, moreover, embody a regular series of fine examples of architectural design and decoration, of both modern and old work, which have been specially obtained. In addition, there will be a double-page plate every week giving either working drawings by well-known architects or specially-prepared drawings of Georgian interior work (a new series). Thus, the illustrations in themselves will make the “Journal” particularly attractive to all concerned with the practice of architecture, while fresh arrangements for the publication of illustrated articles dealing with modern construction, buildings in course of erection, new methods and new plant, a tabulated list of works projected, and a very complete list of contracts open, will increase its value to those who are concerned with practical building rather than with design. Adequate reports of all important legal cases will be published, and, as occasion requires, these will be supplemented by counsel's opinion on the judgments and their bearing on current practice. The “Journal” will thus be a remarkable production, and as the present price of 2d. will not be altered, it will be a unique example of journalistic enterprise in the interests of architecture and the building industry.

EIGHTEENTH-CENTURY HOUSES IN BIRMINGHAM.

WHEN Sir Oliver Lodge, in his presidential address to the British Association at Birmingham, chose "Continuity" for his theme, one was disposed to quote, as applicable in a special sense to Birmingham, the scripture that "here we have no continuing city." Mediæval Birmingham was a town of wattle and clay and other rude and perishable materials. Those members of the British Association who are specially interested in architecture will, moreover, have noted to their discontent that eighteenth-century Birmingham also is melting away. A more than commonly strenuous endeavour to be modern has spared but few remains of the handsome and formal eighteenth-century town of regular and orderly buildings, whose excellent red bricks and no less excellent red tiles were assembled in those just proportions

glaring solecism, by clumsy architraves, by window-panes wider than their height, or cornices of too great projection for their depth. In an age when originality, often of very poor quality, is everywhere obtruded on the public eye, we owe a tribute of respect to men who had the self-control to keep their originality in reserve; who could acknowledge a rule; who could feel a solicitude for ideal proportion not unworthy of Gibbs, or Chambers, or any of the academic purists of the day. The result is seen in the sustained excellence, the ease, the just emphasis of their work. There have been those who have contemned eighteenth-century work as remarkable only for an insipid propriety. Do we need to be reminded that building may be insipid without propriety, or that even a too rigid law may be better than a barbarous independence?



EIGHTEENTH-CENTURY HOUSES AT THE CORNER OF NEWHALL STREET AND EDMUND STREET, BIRMINGHAM.

which were not the meanest merit of eighteenth-century architecture.

Old Square, with its finely conceived and solidly built houses, carrying back the mind to the age of Walpole and Marlborough, was destroyed, almost without a protest, wellnigh thirty years ago, and with it most of the city's eighteenth-century charm. How much of that charm depended on proportion was fully realised by a writer who, in lamenting the disappearance of Old Square, contended that architecture is, in fact, proportion. The builder, he says, who has not at the foundation of his art a canon of proportion, a *modus*, an *ordo*, is little better than a barbarian. With him caprice assumes the place of law: he is governed too much by fancy, which is not an architectonic power. Those builders of the eighteenth century exercised as much care about the proportions of their work as about the bricks or flooring-boards that they used in it, and would have felt discredited by any

Another complaint that is sometimes heard against eighteenth-century houses is of their sameness. It is true that this principle, itself a just one, was sometimes carried to excess, and that what should be the limits of repetition, of variation, in town buildings, is a question to which no very precise answer can be given. Yet, on a fair view, one is impressed rather with the amount of variety one finds in so many houses of the same type than with their general resemblance. When, some few years ago, the whole of Temple Row, facing towards the south and east sides of St. Philip's Church, was occupied by buildings of a design similar to the fragment shown in the illustration, the effect was unquestionably fine. It is seldom that a design is exactly repeated in two entirely separate buildings. The variations are not, indeed, as a rule, very obvious or striking, but are strong enough to be characteristic. This common complaint of monotony may in truth be due, at least in part, to comparative dulness of percep-

tion; to a modern grossness; to a jaded palate responsive only to the strongest stimulants. Let us respectfully admire, if we cannot imitate, the taste that could be satisfied with distinctions so little palpable, so little insisting. Shall we ever regain that economy of design, that sensibility to minute differences, that relish for finesse?

In the eighteenth-century work in Birmingham certain local peculiarities are at once obvious. Bricks suitable for cutting were not easily made from the local clay. Consequently the rubbed and gauged quoins, pilasters, and cornices which form so marked a feature of contemporary London building are not found in Birmingham, where the gauged work was confined to arches and to the radiated lintels of windows. Stone was used for all details of ornament, sparingly, or more liberally, as occasion served; and ignoble substitution—stucco—sometimes took the place of stone. Both appear to have been painted from the first; for Bir-

high parapet enclosing and almost concealing the tiled roofs.

If the exteriors of these Birmingham eighteenth-century houses were sometimes too plain, no elegance of design, no attractive detail was spared in the interiors; and if the originality of the eighteenth-century builders needs any vindication, no better can be found than the variety and grace of their interior architecture. Doorways, mantelpieces, ceilings, staircases, show that inventive force was by no means lacking.

THE WORK ON BUCKINGHAM PALACE.

IN the work of refronting Buckingham Palace the contractors are employing six cranes, five electric hoists, and two passenger lifts, which work with all the smoothness of the tube elevators. The scaffolding, though in the distance it appears as a clinging network,



EIGHTEENTH-CENTURY HOUSES IN COLMORE ROW, BIRMINGHAM.

tingham was even in the eighteenth century a smoky place.

A favourite stringcourse, shown in one of the illustrations, consisted of a band, or fascia, delicately moulded in the manner of Italian architraves, and mitred across the keystones of the radiated lintels. The keystones were frequently accentuated by panels, flutings, rush work, or emblematic devices. Window frames were sometimes level with the outer face of the wall, sometimes recessed in reveals. Stone sills were in common use, the ends often supported on miniature corbels, as in the house at the corner of Newhall Street and Edmund Street. Doorways, as usual in the eighteenth century, exhibited considerable variety, and often a great elaboration of Classic detail. The high roof with dormer windows, rising from a massive cornice, was by no means infrequent: in the houses of Old Square the full Ionic entablature was in some instances displayed. The parapet, however, appears to have been generally preferred to the open eaves, a

in reality does not touch the fabric of the building at all. The scaffolding is not tied together. It is fixed instead with chains and bolts. These scaffold chains alone cost £2,000, and the scaffolding itself cost £20,000.

The boarding is noteworthy. The boards are covered with heavy waterproof felt, and finally another series of boards are placed over that. The first "landing," reached by a lift, appears as substantial and as safe as an ordinary verandah, a tall hoarding preventing the possibility of a fall. The new Portland stone has here been entirely fixed. The stone, which was all worked at Messrs. Leslie's yards, is the best that can be obtained, and some of the blocks cost as much as £10 and more each.

On the second floor nearly everything is completed. Tramlines run along the staging, traversed by substantial-looking trucks. The scheme of the refronting can be well seen here. Two new carved crowns have been fixed around the centre arch and protected by

iron plates. Large Corinthian columns rise gracefully. The third landing shows the men hard at work. It is getting dark, and the 600 day workers have been replaced by 400 who will work through the night. Festoons of electric lights—fairy like—make the task as easy as in daytime. Men, as seen by a representative of the "Standard," sit facing the palace hacking away at the old dirty facing of French stone, which is extremely tough, and in places very thick. Investigations show that it was spoilt by being painted at some period or other. In the refronting about 80,000 cubic feet of stone will be used in all.

At the roof the old cornice stone is being ruthlessly cut away. The ugly lion heads which project here and there will disappear. Even the statues on the roof are doomed. New cornice stone, two and a half feet deep, is being provided. Souvenir hunters have largely scught after portions of the ornaments, and have described as "barbaric" the assurance that everything is to be ground up. Americans are willing to pay hundreds of pounds for the statues on the roof—all of which, however, will be broken up. At present the work is a week ahead of scheduled time.

THE ATHENÆUM CLUB.

THE ATHENÆUM CLUB is one of the most exclusive in London, strangers being rigorously excluded. Hence the very complete series of photographs of the club which are reproduced in the "Architectural Review" for September make that issue a very noteworthy one by reason of these illustrations alone.

The Athenæum was erected in 1830 at a cost of £35,000. Decimus Burton, the architect, was only twenty-seven years of age when he received his commission for the building, and it is doubtful if he ever built anything in later years of equal importance which so adequately represented his skill. He never displayed that masterly adaptation which distinguishes the buildings of Elmes and Cockerell, but his work is, nevertheless, remarkable for its refinement and restraint. In the elevations of the Athenæum he followed the astylar treatment of the Italian palaces, with the cornice carefully proportioned to the whole height of the building. The distinctive Italian note, however, which characterises the two adjacent clubs by Barry—the Travellers' and the Reform—is absent, the more classical models of the elder school of architects having been followed. Especially noteworthy features of the exterior are the Parthenaic frieze modelled by John Henning and the balcony at first-floor level. The latter is treated with great skill, the sweep of the brackets from the wall surface being very skilfully managed. The figure that surmounts the Roman Doric portico is of Minerva.

The great lesson to be learnt from a study of Burton's work, and of the Athenæum in particular, is the desirability for directness and simplicity in the handling of our more important buildings. It is a truism to say that all great men are simple, but it is a truism that we might well lay to heart. It applies to architects in greater measure than to other men, for their work is to build not only for their own age, but for generations to follow, and in their more monumental efforts, whatever licence is allowed them in smaller and more individualistic problems, they should aim at a permanence of effect which can only be achieved by a full recognition of the limitations as well as the possibilities of their art.

A very good example of Burton's indifference to the rigid claims of style is seen in his design for the entrance-hall of the club, which has a Roman barrel ceiling, richly coffered, supported by Greek Corinthian columns modelled on the well-known example from the Tower of the Winds at Athens. The effect of this hall, with the grand staircase on the central axis

branching into two flights from the first landing—the approach in a subdued light, and the staircase brightly illumined by a large octagonal skylight placed centrally over it—is extremely impressive. The present colour scheme, carried out under the direction of the late Sir Lawrence Alma-Tadema, is a most effective one. The columns are a golden yellow colour, with solid gilt caps. The ceiling is cream, with slight enrichments in colour, and the walls are picked out in various shades of lemon yellow. The marble dado to the staircase was put up about twenty years ago; it is finished with a Greek fret of a dark bronze colour, picked out with a thin silver line. Alma-Tadema was also responsible for gilding the statue of the Belfvedere Apollo (a copy, of course, of the original in the Vatican) that occupies the recess on the landing at the head of the first flight of stairs, and for the design of the surround to the clock, which is a delicate interpretation of Greek ornament executed in bronze. This hall is altogether very harmonious in effect, and the club owes much to Alma-Tadema's wonderful feeling for colour.

The various rooms of the club are grouped symmetrically around the staircase. The coffee-room, on the ground floor, occupies the whole of the left-hand side, and looks out on to the gardens of Carlton House Terrace. The ceiling of this room is divided into three bays, with a large and beautifully enriched Greek circular centre-piece to each, from the middle of which hang the original fittings, designed by Decimus Burton, for oil lamps, now adapted for electric light. The walls are of a lemon-coloured yellow, the woodwork to the doors and windows being painted black with slight enrichments in colour and white lines to represent inlay, somewhat suggestive of Pompeian work. The ceiling is ornamented with designs in lilac, yellow, and black. These enrichments, together with the decoration of the walls and woodwork, are due to the present President of the Royal Academy, Sir Edward Poynter.

Passing to the first floor, we enter the finest apartment in the building. This is the drawing-room, a chamber of noble proportions occupying the whole front of the club. It is divided into three bays with coupled Corinthian columns, following much the same plan that Barry adopted for his principal rooms in the Travellers' and the Reform. The bays at either end are square on plan, and the central part, which is rectangular, has a large elliptical dome in the ceiling over. The chimneypieces on the long wall and at either end, and the doors, are fine examples of Burton's feeling for crisp and delicate detail. The ornament may be Stuart and Revett's, but it is used imaginatively and to good purpose.

The library is one of the chief glories of the Athenæum, as befits a literary club. The books, which number about 75,000 volumes, are stored chiefly in the room called the south library, the walls of which are lined with books from floor to ceiling, and the spiral staircase leading up to the galleries gives it a most business-like appearance. The north library is a smaller apartment on the opposite side of the club, while the drawing, smoking, and other rooms are also filled with books. The collection is one for serious use, and no mere ornamental appendage to the club. Something between £400 and £500 is spent every year in buying new books; and there is a valuable collection of foreign books as well as those old and rare works beloved by collectors. Of special interest to artists is the collection of proof engravings, mostly portraits of various members, the work of George Richmond, R.A., who presented them to the club. Macaulay and Thackeray used this room constantly, and Dickens's arm-chair from Gad's Hill is preserved here. Another well-known literary figure who habitually used the library was Isaac Disraeli, the author of the "Curiosities of Literature" and one of the founders of the club. His more famous son, the great

Benjamin Disraeli, was also a member of the Athenæum.

With the exception of a smoking-billiard room under the garden, until comparatively recent years the club had no proper smoking-room, but the addition of the attic storey (by Mr. Colcutt) provided accommodation for this very necessary apartment. It is a finely proportioned room with an interesting ceiling made from some original Adam casts; the marble mantelpiece at the end of the room is a beautiful example of late eighteenth-century Italian work, the execution and finish of which is exquisite.

The club has played an important part in the history of artistic and literary London since the time of its inception; and it is of some interest to architects to know that Sir John Soane, R.A., was one of the original members of 1824.

During his long and varied practice Burton carried out many important undertakings, but it is a fairly safe prophecy to make that his fame as an architect will rest largely upon the Athenæum.

KINGSWAY DEVELOPMENTS.

LARGE sums of money are being spent on the new buildings that are being erected in Kingsway, and it is stated that the cost of nine, which have been designed by Messrs. Trehearne and Norman, is nearly £500,000. At the south-eastern corner the foundations are being prepared for Empire House. The building scheme upon which these architects are engaged is that for the development of the whole of the north frontage of Aldwych, extending from Houghton Street to the London Joint Stock Bank building in Kingsway, at the corner of Portugal Street. Empire House will form the keynote of the design of the whole block, and also, probably, of the treatment of the western corner of Kingsway and Aldwych.

In the design of Empire House the general motive is to erect a dignified block of well-lighted and convenient offices, which this most important and prominent position of Kingsway demands. The whole of the front will be constructed of Portland stone, with the exception of a polished granite base and certain other dressings to the ground and first floors.

The shop fronts on the ground floor and the windows on the first floor will be combined in order to give a fine appearance to the lower portions of the building. The main entrance to the offices will be at the angle where Kingsway and Aldwych meet, and will be constructed of white Pentelicon marble, with columns on either side of the door. Like the two modelled panels above it, the door will be of bronze.

The chief idea underlying the scheme is to build up and emphasise a corner of monumental appearance. The prominence of the position demands this breadth of treatment, and it is, moreover, eminently suited to the requirements of the head offices of large business firms. This object it is hoped to achieve by recessing the central portion of the angle and treating it with sculpture in high relief and flanking with two large columns. The principal intention of the Kingsway and Aldwych elevations is to centralise this position, and hence the predominating long lines of cornices, and so on.

A spacious and well-lighted entrance hall on the ground floor will be lined with marble and relieved with bands of colour carefully selected. The lift enclosures and balcony railings will be of bright polished steel, richly modelled. The architectural treatment is on the lines of the English Renaissance.

Adjoining Empire House and facing Kingsway, another building is immediately to be erected by the same builders, Messrs. William Taylor and Co. The total frontage of the two will be some 225 ft., while the whole scheme, including Houghton Street, will cover nearly five hundred feet of frontage.

OUR PLATES.

Persepolis.

THE drawing of Persepolis, by Mr. A. C. Conrade, reproduced as the frontispiece to this issue, shows the winged-bull figures and the peculiar capitals of the Persian column, the thin proportions of which seem to indicate that they carried only a wooden superstructure; but it would be difficult to place this now anywhere among the existing remains. It is most interesting, however, as embodying the spirit of that great palace of Ancient Persia, built during the latter part of the fifth century B.C.

The Grand Auditorium of the Sorbonne.

The Sorbonne is M. Nénot's chief work, and the grand auditorium (illustrated on page 311) is its most important apartment. The treatment of the mural decoration is very individual, and there is a spaciousness about the whole conception that is eminently in keeping with the great Paris university.

"Long Holt," Hildenborough, Kent.

This house, built for Mr. L. de Fonblanque, stands on a site of several acres, and faces south-west. The site has a gentle slope away from the building, and parts of it are well wooded, but the trees do not interrupt the view from the south front. The roof of the building is covered with dark brown tiles from the Wye potteries, the walls being finished with whitewashed bricks and red hand-made facings. Sash windows are used throughout. The paintwork is finished white, and most of the walls are kept the same colour. Messrs. H. R. and B. A. Poulter, of Camberley, were the architects, and Messrs. Martin and Co., of Tonbridge, the builders. (See page 313.)

Design for a Chandelier in Bronze and Gold.

Thomas Hope is perhaps the least-known member of the splendid succession of men—such as Chippendale, Hepplewhite, Sheraton, and Popham—who, working under the influence of the principles and details that had been revealed to them by Classic research, raised English decorative design to a very high position, by "welding all that was noble in native craftsmanship to the best traditions of the antique." In the chandelier shown on page 315, the very free adaptation of Classic details demonstrates the designer's entire freedom from the constraint which devalued the work of the mere copyist, and it also suggests—although it does not altogether happily illustrate—the universal applicability of Classic elements. The crown of stars over a wreath of nightshade is more fortunate in its symbolism than in its decorative effect. (See page 315.)

Chimney-piece at 27, Crutched Friars, E.C.

The illustration on pages 316 and 317 shows a fine example of an eighteenth-century chimney-piece. It has recently been taken out of No. 27, Crutched Friars, E.C., which house was, unfortunately, included in the site acquired by the Port of London Authority, and cleared to make way for their new offices. It dates from about 1725, and is one of a great number of similar chimney-pieces to be found in the panelled rooms of the Georgian houses of London. The drawing which we reproduce was made by Mr. W. Dodginton.

Cardiff Fire Station.

As the Centre Plate in this issue we illustrate a perspective drawing of the new headquarters of the Fire Brigade at Cardiff, now in course of erection from the designs of Messrs. E. Vincent Harris and Thomas A. Moodie, A.A.R.I.B.A. The building comprises four floors in addition to the ground floor, which (as can be seen from the plan on the perspective) is mainly occupied by engines, fire-escapes, etc. The first floor provides living and sleeping accommodation for the staff. A working drawing of the tower was given in our issue for September 10th.

Supplement to THE ARCHITECTS' AND BUILDERS' JOURNAL, Wednesday, September 24th, 1913.





NEW FIRE-BRIGADE HEADQUARTERS, CARDIFF. E. VINCENT HARRIS AND THOMAS A. MOODIE, A.A.R.I.B.A., ARCHITECTS.

(*Royal Academy Exhibition, 1913*).

CORRESPONDENCE.

*The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.
Correspondents are asked to be brief, and to write on one side only of the paper.*

Mr. Chiozza Money and the Building Industry.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—In the highly "practical" paragraph which you publish under the above heading in your issue of the 3rd inst., you tell your readers that I have not made any proposal of value to rescue building from its present parlous condition, and you add, "Unless Mr. Money is prepared to push his parallel to its logical (and absurd) conclusion—that the State should become the owners of all the slum property in the kingdom, then promptly scrap it, and immediately set the builders to work on up-to-date substitution—his argument is merely picturesque."

You must forgive me for saying that it is rather painful to read this kind of thing. Why should the Government of a State or of a city acquire slum property? When is it necessary to start a navy by buying up old and unseaworthy ships? The practical proposal which I, in common with others, have made again and again, is that the Government of a State or of a city should go outside city borders, acquire by compulsion the whole of the belt of agricultural land at an agricultural price, and build beautiful and comfortable houses with cheap money which only a State can command. I am astonished that a paper written for architects cannot see that such a proposal is not only practical, but one which would elevate both the architectural and building professions.

As for the rest of what it pleases you to say, when I referred to wall paper at one shilling a piece, making a comparison between a permanent and a temporary decoration, I, of course, referred to the cost of stripping the old paper, of buying new cheap rubbish paper, and putting on the new rubbish, and that would not be less than one shilling a piece, and probably more. What is your estimate?

You must allow me very respectfully to point out, since you have challenged what I have written, that it is not my view, but the present housing of the people, which is in the dock. The houses of this country are a disgrace to the country, and the tumbling down of tenement houses in Dublin, like the tumbling down of a tenement house recently in London, and like the collapse of Charing Cross Station, are but extreme cases, illustrating a deplorable condition of things, which you, sir, ought to be the first to denounce.

You say I am not practical. Let it be put on record in your columns, for future reference, that I prophesy that my policy, which you say is not practical, will be a recognised and adopted policy in this country within twenty-five years. Indeed, in Ireland it is already an accomplished fact—see the Irish Labourers' Acts.

L. G. CHIOZZA MONEY.

September 9th, 1913.

[Mr. Chiozza Money is as easily pained as astonished; and his insinuation that because we have not found his arguments convincing we are therefore necessarily apathetic towards the housing problem, and are tolerant of bad building, is as gratuitous as his assumption of the prophet's mantle.—EDS. A. AND B.J.]

Designing Fire Stations.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—With reference to the inquiry on this subject in the issue of your journal for September 17th, I see that the Cardiff Fire Station was illustrated in your

issue for October 23rd, 1912. Complete plans of the various floors of London fire stations will be found in your issues for June 3rd, 1903, April 19th, September 6th, and October 11th, 1905, and April 28th, 1909.

There is a good description with plans of London stations in the "R.I.B.A. Journal" for April 24th, 1909, while the competition designs for Manchester Central Station appeared in the professional weeklies about ten years ago and for Hendon about fourteen months ago.

The only architectural description of these buildings appears to be that in Middleton's "Modern Buildings," but this work does not describe the type of station your correspondent appears to require.

Mr. Merryweather's Fire Brigade Handbook contains a good deal of information, and in the National Fire Brigade Union's Manual some plans of smaller provincial stations are given, but these books are of more use to professional firemen than to architects.

The upper floors of fire stations or the detached housing accommodation should be planned on the lines of the better-class model-dwellings found in London and other large cities. If all the flats cannot be provided with convenient sliding poles the staircases must have handrails on both sides properly swept round all angles.

The chief essentials of an engine house are ample floor space, unencumbered with columns, adequate doors back and front of sufficient width, efficient lighting both natural and artificial, and properly arranged sliding poles. A horsed engine occupies about 13 ft. by 6 ft. 6 in., with the pole projecting 8 ft. in front.

If stalls for horses are provided their enclosing partitions should be easily removable, so that if motor traction is adopted in the future the space occupied may be thrown into the engine-room.

A motor engine requires about 16 ft. over all by 6 ft. 6 in. If an escape is carried on this it will project about 5 ft. behind and 4 ft. in front. Escapes carried thus or on vans vary in length (measured horizontally) from 21 ft. to 30 ft., and the latest turntable type requires about 33 ft. by 7 ft.

The height of engine-rooms is generally about 12 ft., but care should be taken that the head of the escape will clear the gear for the quicker opening of the swing-doors, the electric lamps, and the apparatus for suspending the harness over the horses' backs.

I think I need not trespass further on your columns, and am, yours faithfully,

F. J. FORSTER, A.R.I.B.A.

London, E.C.

"THE LAY-OUT OF THE NEW DELHI."

THE article in our issue of September 3rd on "The Lay-out of the New Delhi," bearing as it does the initials of our most eminent authority on town planning, and being, in fact, the first serious criticism of the scheme, has naturally attracted widespread attention. It is due to the author to state that, but for delayed transmission of a proof, one or two rather important corrections (or rather restorations) would have taken effect.

On page 227, in the eighth line from the end of the third paragraph, it was the author's intention to refer specifically to the "types of residences to be found in the Hampstead Garden Suburbs," where there are numerous types of residential hotels and hostels, such as are not usually found in the garden suburbs elsewhere. On the same page, the second sentence in the fifth paragraph should have read (as the author originally wrote it):—

"We know, for instance, that in nine cases out of ten the naturally grown city having a water front, has at least two important streets parallel to its course, and that the second street from the front is the principal business street of the town."

HERE AND THERE.

LOOKING through one of the American engineering journals the other day, my attention was drawn to an article on "Psychology and the Contractor." This appeared to be such a flagrant contradiction in terms that I hastened to see how East and West had been brought together; for psychology is that branch of speculative science which deals with the mind or soul, and though the contractor has certainly a mind of his own, which he can express most forcibly, the idea of a contractor with a soul seems quite impossible in these days of lowest tenders. And by the time one has come to the end of the article the first impression is confirmed. After all, if one may soliloquise for a moment, the whole field of human labour is very little different from what Darwin saw in Nature half a century ago—a field of conflict in which the weakest goes to the wall, in which the man who cannot rise out of the rut has to stay in the rut, and in which the man of business ability can help himself up the ladder. Hence the modern contractor (or the modern architect for that matter) stands in very much the same relation to his fellows as his precursors did when they prowled about with green-stone axes. Nevertheless, there are certain kinds of character which upset one's premonitions. The recent experience of San Francisco with a bonus-and-penalty form of contract serves to illustrate this aspect of the case. Here let me turn to my American journal, which says: "As a plain business proposition one would think that a contractor with a fixed-sum contract would rush work through in order to release his plant and use it elsewhere. It is the ordinary business method of turning over one's capital as many times as possible. As a fact, however, while this does theoretically appeal to the contractor, practically it makes very little difference in his pace. Custom and the particular types of plant used have set a certain speed, and so long as that is maintained very little study is given to the elimination of small inefficiencies and the saving of minutes here and there. The 'hanging up' of a bonus, however, invests the job with the spirit of a game. Not only is there a schedule—he probably had that before—which it will be a satisfaction to beat, but there is also a monetary prize to win. The bonus seems to be a challenge to him to 'get under' the mark set, and with the love of a contest inherent in human nature he accepts the challenge. A contractor to whom \$1,000 is a bagatelle will chuckle with delight over the earning of a bonus of that amount, and brag about it to his friends. He will bend every effort to get it, spurring on his organisation and tuning up his equipment to the top notch. The game makes him critical of even small delays, and inefficiency in the use of equipment grows intolerable."

Without doubt this result is admirable from the contractor's point of view, and probably equally satisfactory to the person or the municipality for whom the work is being done, but it recalls the Greek fable of the boys and the frogs—"what is fun to you is death to us." To invest a contract with the spirit of a game may be attractive to the man who is not one of the unfortunate players; but, as things are, the affair resembles a modern interpretation of a gladiatorial contest, with Mr. — for the Roman Emperor and building artisans for combatants. It recalls, to my mind the American building superintendent who was engaged on the erection of a large London hotel at break-neck speed, and who had the telephone connected to his bedroom, so that Inferno might be complete.

In contrast to the hard-pushed building superintendent who "gets there" in American fashion, we have the good old English foreman who takes life easily.

He is always fat and slow moving, generally has a sound knowledge of building, delights to tell you how the good work was done in his 'prentice days, and is sure to look askance at anything new, which, in his view, is bound to be new-fangled. Still, it is quite an education to watch the English foreman looking on quietly as the brickies' labourers shove barrow-loads of material up a steep incline on a sweltering hot day, or ten stalwart navvies, in the foundations, heave together as one man at the end of a lever. It seems to take a tremendous lot of this to upset the foreman. At the same time, unlike Brer Rabbit, who, it will be remembered, kept on saying "nuffin," he is disposed to be profanely loquacious, and may be counted upon to say the wrong word at the right moment.

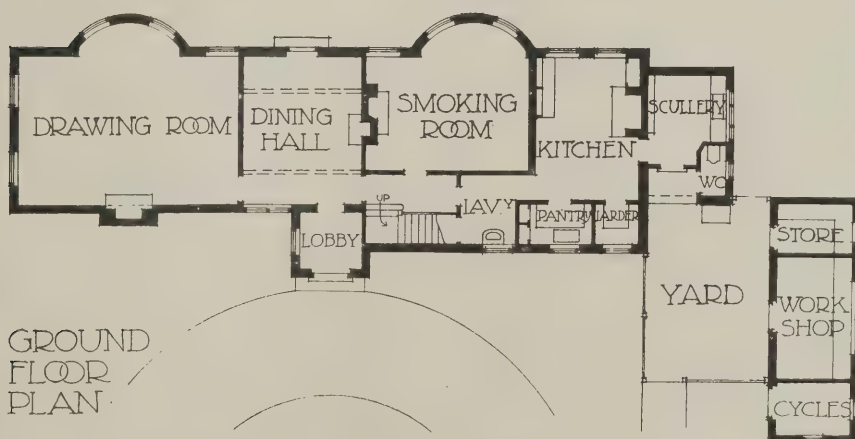
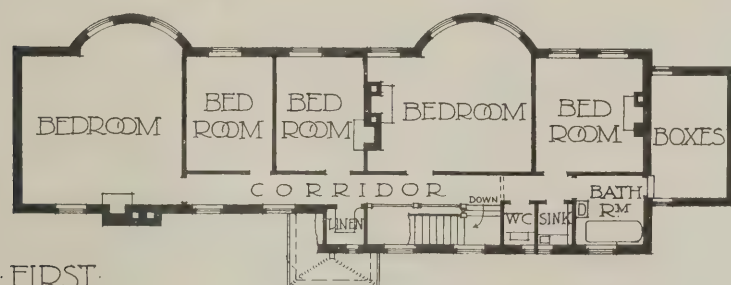
When we survey it—Assyrian, Egyptian, Grecian, Roman, Byzantine, Gothic—what an astonishing part was played by colour in the architecture of the past as compared with the architecture of the present day. Those sublime relics on the Acropolis, for instance, how the colours of their members must have glowed in the southern sun, presenting an effect of chaste richness and warmth directly opposite to the frigid chasteness of such an art as Flaxman's. And when we step across the centuries and see the Gothic fane in all its mediæval completeness, how strange a contrast to the monochrome of the time-stained façades that confront us to-day, with their pinnacles, fretted niches and statuary, all of one tone. A visitor to Paris in the time of Charles VIII. noted that the west front of Notre Dame was ornamented with gold and painted with divers colours, presenting a very rich effect. And Professor Lethaby is at hand to tell us that all exterior sculpture was intended to be painted as part of the traditional finish. "The general method of treating a great scheme like a west front was to wash the whole with ochre, to paint certain niches and hollows red, green, and blue; to fully decorate the images and write inscriptions on the scrolls they bore; and then to touch certain details with gold. The finished front was fair and sparkling exactly like a colossal painted ivory triptych. From the front the colour and gold spread to the lead roof, the crest was gilt, and at times the slopes were diapered with a big pattern." That was French Gothic at least, and we have every reason to believe that our own cathedral builders adopted a similar method.

An architect, an elephant, and some diplomatists are the *dramatis personæ* of a little incident which has just been reported. It appears that a new elephant house was required at the Budapest Zoo, and the architect who was commissioned to design the building thought it would be a pleasant fancy to make it like a mosque, well garnished with minarets and Arabic inscriptions (could it be that he had seen Lord George Sanger's Circus, Earl's Court Exhibition, or the Brighton Pavilion?). However, all went well till one day a wandering Turk chanced to see an elephant's head projecting out of the holy fabric. Thereupon he rushed off to the Ottoman Consul, who reported the desecration to the Turkish Ambassador, who reported it to the Porte, who finally caused a polite remonstrance to be addressed to Vienna. At first—so the story continues—it seems Austria-Hungary was disposed to treat the matter as a joke, but on the representations being repeated in a more energetic tone, the proud Habsburg Monarchy yielded, and the authorities at Budapest were instructed to have the offensive mosque demolished. In these times of international sensitiveness, what a comfort that Messrs. Belcher and Joass have gone back to Nature (reinforced) in the new Mappin Terraces at our own Zoo. UBIQUE.



GRAND AUDITORIUM OF THE SORBONNE, PARIS. PAUL HENRI NÉNOT, ARCHITECT

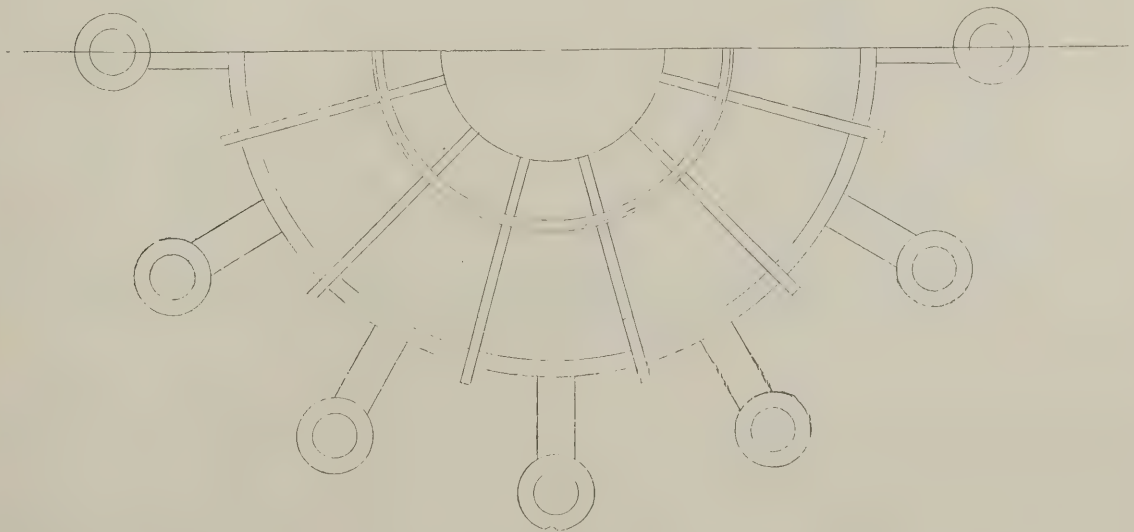
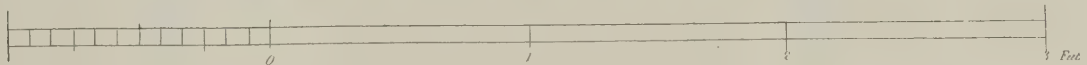
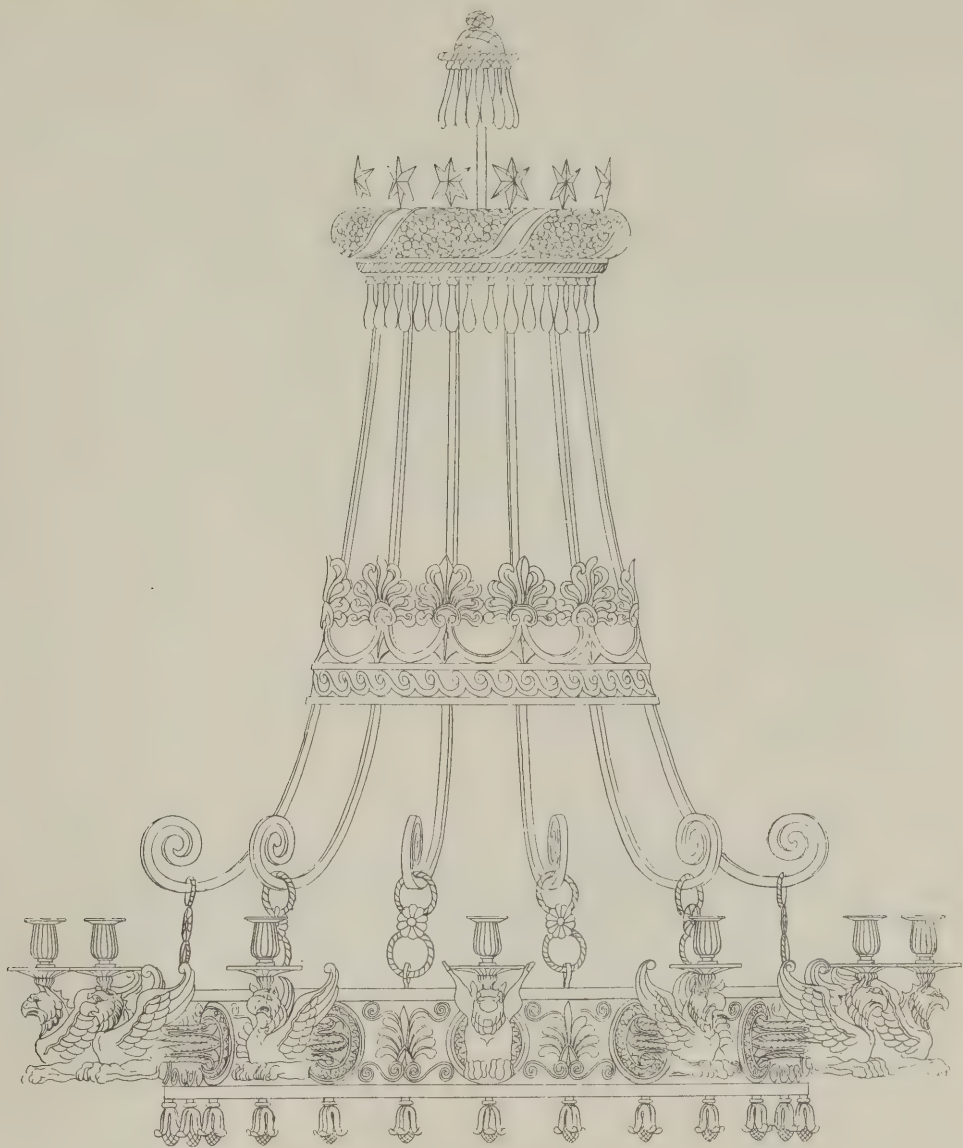
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"LONG HOLT," HILDENBOROUGH, KENT. H. R. AND B. A. POULTER, ARCHITECTS.

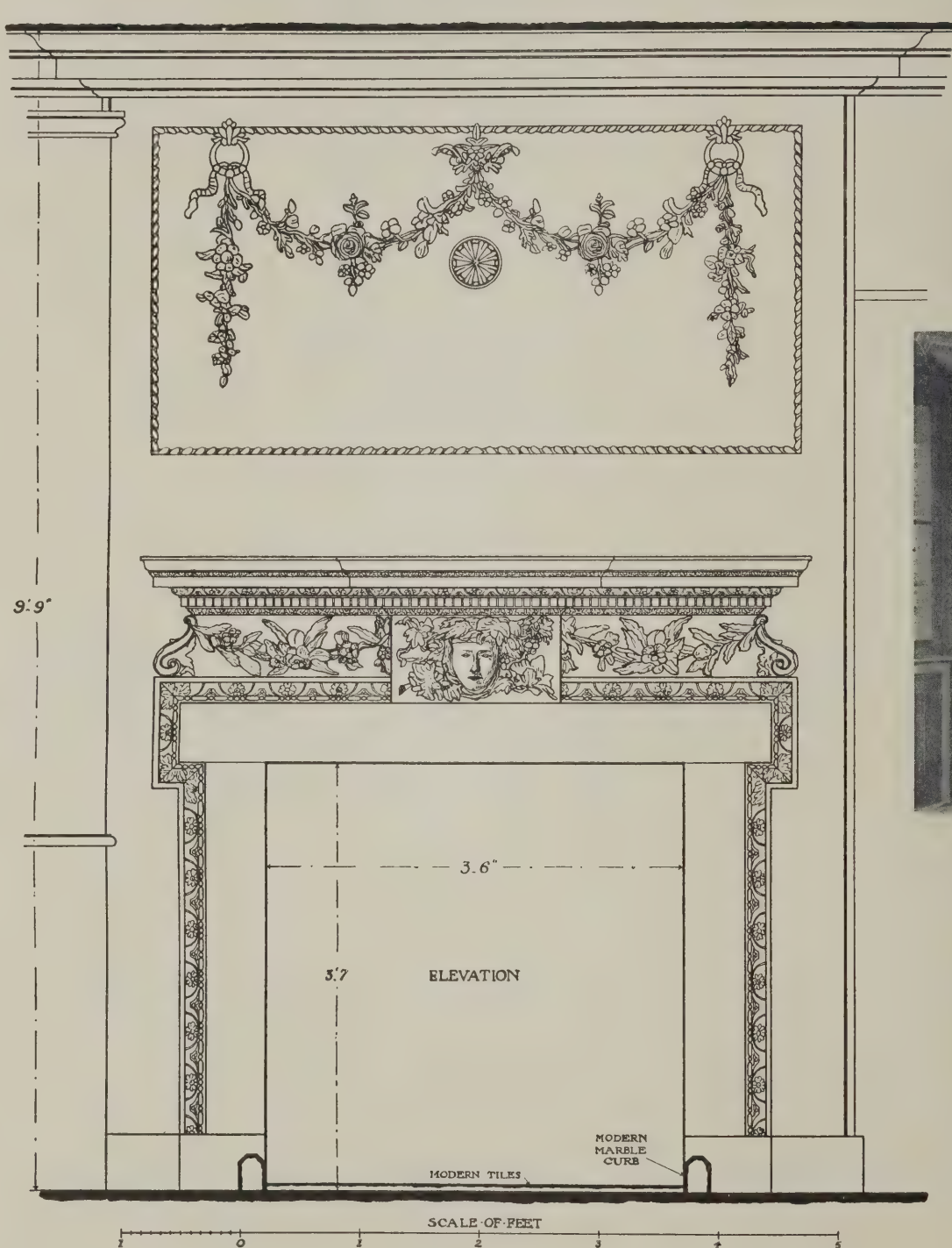
(See page 308.)



DESIGN FOR A CHANDELIER IN BRONZE AND GOLD. BY THOMAS HOPE.

(See page 308.)

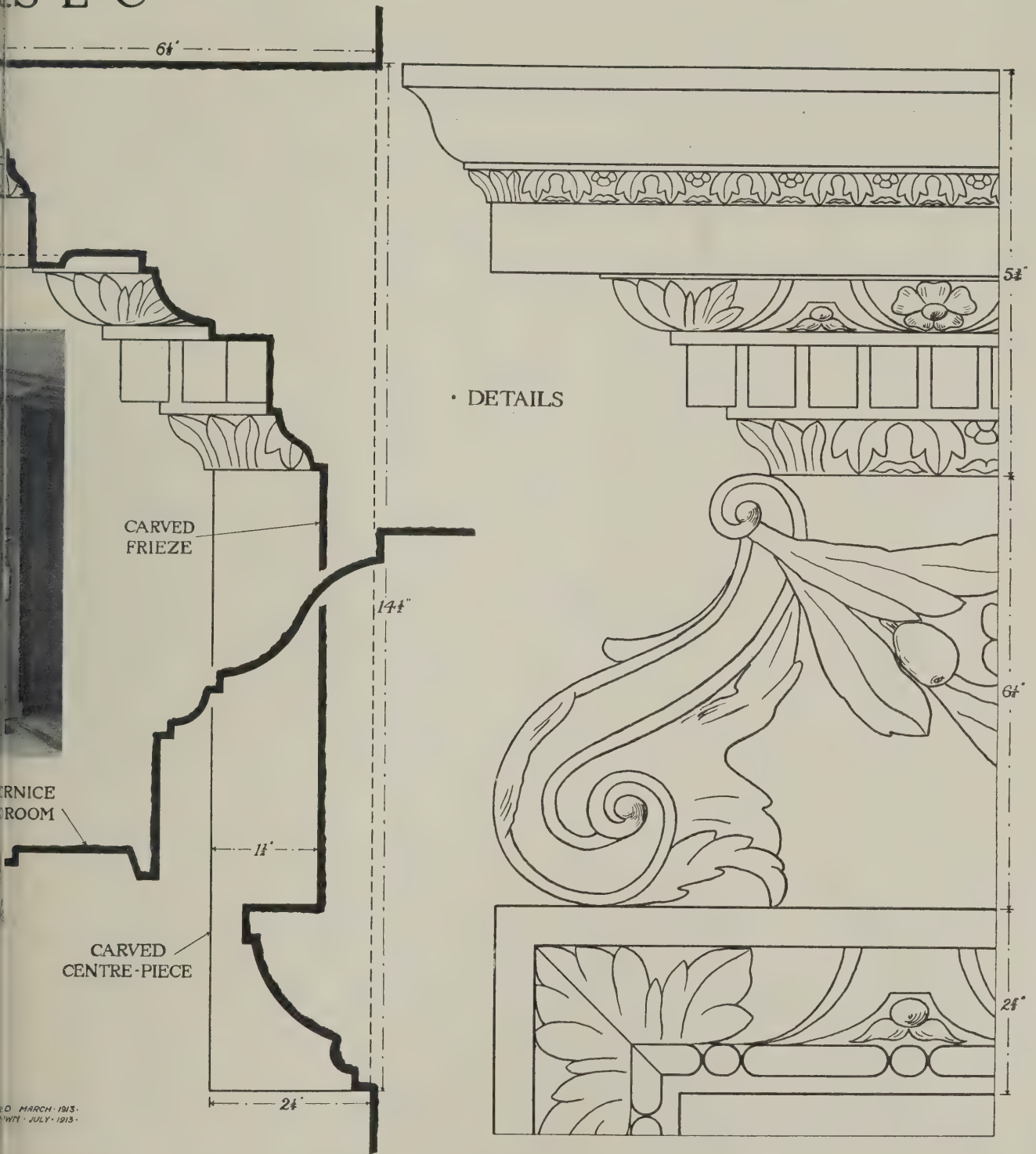
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CORNICE
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D. MARCH 1913.
W. J. JULY 1913.

WILLIAM DODDINGTON.

(108.)

FIRE PREVENTION NOTES.

The Aisgill Train Fire.

Fire having played so deadly a part in the Aisgill railway disaster, it is incumbent on us to take note of the cause of the outbreak, and to consider what means should be adopted to prevent similar occurrences. The chief question that is raised is whether gas or electricity is the safer means of lighting railway trains, with special reference to the behaviour of the respective means of illumination after an accident. Evidence at the Aisgill inquiry left considerable room for doubt as to the extent to which escaping gas intensified the horrors of the disaster. The evidence was inconclusive and to some extent conflicting. Some of the shattered carriages took fire, and one of the witnesses expressed the opinion that this fire could have been extinguished if it had not been fed by escaping gas. Other witnesses thought that the fire was entirely due to live ashes from an engine.

Automatic Valves.

In reporting upon a former accident, Major Pringle recommended that, in order to minimise the risk of fire where gas-lighting is used on railway trains, there should be fixed in the gas cylinder a valve to close automatically when the rush of gas exceeds a certain pressure. Sir Guy Granet, the manager of the Midland Railway Company, in quoting this recommendation at the inquiry, said that a satisfactory valve had been adopted, and had proved its efficiency in a case in which, at Wanstead Park, a light engine ran into a train of empty carriages. The pressure pipes underneath two of the carriages were broken in the collision, but in each case the safety valve closed and the gas was unable to escape. After the Aisgill accident the gas cylinders were found intact, and Mr. David Bain, the company's carriage and wagon superintendent, thought that a witness who said he had seen a gas-jet aflame must have been mistaken. Mr. Bain was satisfied in his own mind that gas did not contribute to the fire in any way, and this view was expressed by several other witnesses. Other recommendations by Major Pringle that are being carried out are the strengthening of the ends of the cylinders, decrease of diameter of cylinders, and improvements in housing and protection of cylinders and gas mains. A recommendation that the cylinders should be placed above the roof instead of under the framing the company did not adopt, as it was thought that the present position was the safer. The company also agreed to the principle of the suggestion that incombustible material should be provided above or below cylinders, according to the principle adopted. They have even gone beyond it, and are covering the whole of the underside of the floor of all new stock with asbestos; and for the past ten years the liability to take fire has been dealt with by employing a steel under-floor in the construction of all new stock. It will be noted, however, that there is at least as much danger above as below. In the Aisgill accident it was the roofs that took fire; and railway companies should seriously consider the advisability of making their carriages fire-resisting throughout.

Electricity versus Gas.

With respect to the comparison of electricity with gas, Sir Guy Granet quoted at some length from Major Pringle's Hawes report: "It cannot be denied that there is a greater

liability to fire in a railway accident of this description when gas is used as an illuminant than with electric light, for it is a simple matter to prevent danger from short circuiting of electric wires by the proper provision and arrangement of fuses. But this elimination of gas as a source of light would not preclude all danger from fire. There remains the risk from the contents of an engine fire-box and from the employment of coal, coke, or gas in cooking ranges and stoves on restaurant cars. Instances of fires so originated can readily be quoted, e.g., at Grantham and possibly at Cudworth. In fact, this is actually the first occasion when it can be proved beyond question of doubt that fire was occasioned by burning gas. It has to be remembered also that gas has been in use for lighting purposes for a very long period, and that during the whole of that time—in fact, since the year 1868—there is no case of fire destroying either the lives or bodies of passengers in a railway accident. Gas with the latest improvements in the way of incandescent mantles, etc., has also many practical advantages over electricity as a source of illumination. It requires no expert staff, is nearly as easily controlled, is more economical to instal and maintain, and is less liable to failure as an illuminant. It is only reasonable, therefore, first to consider, before entirely condemning it, whether it is possible to safeguard the use of gas as an illuminant by the adoption of any improvement in appliances which may minimise the risk of fire. On grounds of safety I hold that electricity is the more desirable means of illumination for passenger trains, and as such should be adopted wherever possible, and that in the case of long distance and express trains it is more particularly to be recommended."

Foreign Practice.

Carefully considering this report, the company made investigations as to what was being done abroad, where expert opinion, Sir Guy Granet thought, was in favour of gas rather than of electricity. He was informed, but had not verified the statement, that the (largely State-controlled) railways of Germany and Austria have 60,000 passenger vehicles, and there is not one of them which is lighted by electricity. Therefore, and in view of the small percentage of railway fires due to gas, the company thought it would be premature to make a complete revolution in their policy as to the illumination of railway vehicles.

It is satisfactory to learn, on the testimony of all the witnesses who gave evidence on the point, that the extinguishers, of which fifteen were carried by the two trains that were concerned in the collision, did their work exceedingly well; but they would have been more effectual if they had been more efficiently handled. They so swiftly subdued the first outbreak that the fire was thought to be extinguished when it was merely smouldering—a mistake that can be easily understood when one remembers that the ordinary excitement of a fire was in this instance greatly intensified by the other terrible incidents of the accident. One of the witnesses, Captain Walter Hill, of the Royal Fusiliers, who had exerted himself devotedly in the attempt to rescue passengers from the wreckage, mentioned, in the course of his evidence, two useful points. He thought that the extinguishers should have been placed in charge of men specially drilled in their use, and that notices of where the extinguishers, and other emergency appliances, were to be found should be conspicuously displayed in trains and in railway stations.

FIRE PREVENTION IN THE PRINTING OFFICE.

Printing plants, as fire risks, are somewhat in a class of their own. They have all of the points of hazard common to plants of all sorts requiring power equipment and machinery and, in addition to these, they have certain other elements of risk peculiar to themselves. The printer, therefore, must take the special measures of prevention which his business calls for, over and above the precautions required in other plants.

For one thing, he usually uses gasoline or benzine to clean type. Now, from the standpoint of the insurer, there could hardly be anything more dangerous than either of these very useful and indispensable substances. They are extremely volatile, and extremely inflammable, almost to the point of explosiveness, both in liquid and gaseous forms. It is estimated by those who ought to know that a pint of gasoline will, upon evaporation in a closed space, render inflammable 200 cubic feet of air. This is not true when the room is ventilated; that is, when the air is constantly changing. Therefore, *ventilate!* This will to a great extent eliminate the danger arising from the volatilisation of the liquid, as the fire must be closer to the container in order to start a blaze. It is strongly urged by insurance inspectors, also, that not more than one gallon be kept in the building at any one time, and that the quantity kept be contained in safety cans. These are of various patented designs, such that the liquid cannot be spilled out, no matter how the can is kicked over or turned upside down. The advisability in any case of keeping the liquid at a distance from any open fire is obvious.

Another patented device comes into play with the disposition of oil-soaked waste, which is used and accumulates wherever machinery is in operation. When allowed to lie around on the floor or in corners, it offers the finest starting place in the world for a fire, awaiting only the spark on the end of an apparently burned-out and tossed-aside match to spring into destructive action. Experts recommend a special can for this and other inflammable refuse, of a standard design, the principal feature of which is a self-closing lid, thus discounting even that degree of carelessness which, after placing the waste in the metal can, would forget to place a separate top on it.

The waste paper, which is inseparable from the operation of a printing office, is another grave source of danger in the starting of a fire, and is a maker of speedily-spreading blazes when once the fire has started. Some printers permit such litter to accumulate until walking about is a matter of considerable difficulty, having a weekly or monthly, or semi-annual clean-up, after which the stratification of cast-off proofs and other *débris* begins again. This should not be allowed. A closed bin, preferably metal or metal-lined, should be provided as a receptacle into which all waste paper should go, and it should be disposed of daily, unless a tight cover can be used, in order to prevent all danger from this source over night. The ordinary metal garbage can would serve this purpose very well in the small plant, and could also be used in such plants as a receiver for oily waste and other trash.

Linotyping machines, stereotyping machines, and other equipment requiring the direct application of heat, are obviously a prolific source of danger of fire, and the fuel used may be of a character

which renders the danger greater. Gas, of course, is almost the ideal fuel for this purpose, because of the ease with which it can be controlled. In places where gas is not available, however, it is necessary to use gasoline, and this may be dangerous by its very presence, as already pointed out. In any case, such machines should be placed upon some sort of metal flooring or floor covering, and never upon the bare wood, and concrete is better still. Where these measures are used, there is nothing to catch fire in case the machine or the fuel decides to become unruly.

Presses, like other machinery, in printing or any other plants, requiring constant oiling, should likewise be placed upon metal or concrete, instead of upon wood. There is always more or less oil gradually dropping from such machines to the floor beneath, and where this floor is of wood, its saturation with lubricating oil renders it inflammable in the highest degree.

Where electrical equipment is used, as in many modern plants, the greatest care should be used in order to prevent fire from this source. It is none the less dangerous that this is not apparent. A whirling motor or a lifeless looking wire may seem harmless enough, but the power they represent may take shape in flame as well as in light or other forms of energy. Motors should always be properly enclosed, and wires not only insulated, but, if possible, carried in conduits. In a large plant of a big publishing house in the United States all wires are not only placed in conduits, but the conduits are embedded beneath the wood floors in several inches of cinder concrete, thus placing them beyond any possibility of causing fire. There is probably much less danger from electric equipment than from a steam plant, and possibly less from either than from gasoline power, unless the engine is located, as it should be in any case, at some distance from the plant proper.

If larger plants than the average are considered, and those housed in big buildings of their own, such as newspapers of the larger cities occupy, an immensely larger field than that peculiar to printing plants as such is opened up. The architectural requirements of larger buildings in order to render them fireproof, in the strict sense of the word, are numerous, and yet not nearly so well understood as they should be, even among architects themselves. Many a man has ordered a fireproof building, relying upon his architect to turn out what was called for, only to find that when the building was completed the experts of the underwriters could pick enough holes in the fireproof scheme of that building to make it look like a very fire-trap. The vital matters here are the material of which the building itself is constructed, the kind of framework used, the roofing and flooring material, the question of open elevator shafts and stairways, to form flues and conduits for the spread of the flames, and many other things.

The printer or newspaper man has not always absolute control over the structural details of the building in which his plant is housed, and, even if he builds it himself, it may not be just as he would like to have it in the important respect of being fireproof, or nearly so; but there is practically no case where he cannot take the fundamental precautions here laid down. If he cannot provide concrete, or concrete finished floors, or iron or steel sheeting for his machinery to rest upon, he can use zinc, such as is used under stoves.

There is perhaps no kind of plant which suffers more from a fire than a printing house. The type, half melted and scattered, is a total loss, save as scrap metal;

the paper stock is highly inflammable, and the machinery itself is much more delicate than that in most industrial concerns. There is every reason, therefore, why the printer should take a few extra precautions in the way of fire prevention, even if it were not a fact that his business adds a few more hazards to the ordinary industrial risk.

A PHASE OF ARCHITECTURAL EVOLUTION.

At the British Association meeting at Birmingham, Professor G. Elliot Smith read a paper on "The Evolution of the Dolmen," the aim of which was to prove that the dolmen represented a degraded form of the typical Egyptian tomb of the Pyramid age. The essential parts of such a tomb in its fully developed form were a deep shaft leading to the subterranean rock-cut burial chamber; a mound of rubble, surrounding the upper opening of the shaft enclosed within four stone retaining walls, forming an oblong superstructure—the mastaba; and a chapel of offerings on the side of the mastaba facing the Nile, and as it became the fashion in the Pyramid age to build the tombs on the west bank, the temple as a rule faced east. In the chapel let into the eastern wall of the mastaba was a false door or stela, symbolic of the means of communication with the dead, before which offerings of food were made to the deceased; and hidden in the mastaba somewhere between the chapel and the shaft leading to the burial chamber was a chamber, the serdab, surrounded and roofed with great slabs of stone, in which a statue of the deceased was placed.

The idea of the dead man's spirit dwelling in the serdab appealed strongly to the imagination of a superstitious race, and the conception of the serdab became magnified into the belief in the necessity of providing a house strong enough to endure and prevent the possibility of a houseless spirit wandering at large and making itself a nuisance to the living. Thus when the mastaba type of grave was made to bury an Egyptian dying in a foreign land, where skilled craftsmen to carve statues and cut burial shafts deep in the rock were unobtainable, the serdab was not only still retained, although there was no statue to put in it, but it even increased in size and importance. It became a chamber built in many instances of huge masses of stone so as to ensure the permanence necessary to keep the spirit at home. The stela also persisted and became the holed stone of the dolmen—the hole being the representative of the slit of communication between the chapel and the serdab in the mastaba. In the Sardinian "Giants' Tombs" there were represented the mastaba, with its retaining wall, the tumulus, the serdab, a carved stela, and a chapel. In the *allée couverte*, so typically seen in France, were represented the chapel, often with very crude portraits of the deceased in bas-relief, the stela, and the serdab, but without the tumulus and its retaining wall in many cases. The simplest form of dolmen represented a glorified serdab—the home of the disembodied spirit hovering above the remains of the body in the grave—without a stela, but with usually the eastern side open to represent the door through which offerings of food could be made.

It would be superfluous to insist on the deep indebtedness of architectural scholarship to the splendid and prolific results of archaeological exploration such as that which underlies Professor Elliot Smith's thesis.

STRENGTH OF STRUTS.

A paper on the strength of free-ended struts, read by Mr. Andrew Robertson at the meeting of the British Association at Birmingham, gave an account of experiments made on mild steel struts to ascertain the law of variation of strength with length when special precautions were taken to secure (a) axial loading; (b) straightness; (c) freedom of the ends from constraint.

The conclusions were (1) that Euler's law was followed down to the length for which the load per sq. in. given by this law was equal to the stress at yield; (2) that below this limit collapse occurred when the load per sq. in. was equal to the yield stress; and (3) that for round struts of length less than five diameters there was no definite ultimate load. The transition from the elastic to the plastic state was marked not by collapse of the strut, but merely by a sudden deformation of appreciable magnitude.

In all the cases in which the collapsing load per sq. in. was equal to the yield stress the specimens were bent, and on relieving the load and again testing them they failed under a load smaller than the first collapsing load. This was probably due to the existence in compression, as in tension, of a condition immediately after yield in which the stress that the material would sustain was less than that required to initiate the yield. The effects of eccentricity of loading and initial curvature were investigated, and a number of tests of struts of ordinary commercial section were compared with the theoretical results.

FIRES IN COUNTRY HOUSES.

Concerning the origin of fires in country houses, Mr. W. O. Rooper records the following instructive experience:

If the electric light cannot be fastened upon, it is usual to attribute the origin of unknown fires in country houses to the charring of an old beam in a chimney flue. No doubt in many cases a beam has been to blame. The following experience may be of interest and possibly the means of drawing attention to a danger not generally recognised.

A first-floor bedroom in an old house was converted into a boudoir, the room below being the dining-room. The walls of the new boudoir were hung with silk, cornice and dado rails being fixed for that purpose. After some five years I noticed that the silk on the recess near the fireplace was discoloured, and, fearing that the electric wiring might be at fault, I lately had the silk in the recess removed. I found the whole of the inside of the silk black from smoke, and the dado rail black on the inside, where it was nailed to the plugs which fastened it to the wall. These plugs, four in number, were 3 in. wide and 4 in. long, and had been driven into the wall where the dado rail was fixed. The dining-room chimney flue was carried in the wall, and evidently was only the thickness of one brick from its face. The plugs were all charred and black, and had been slowly burning away from the ends nearest to the flue. No doubt but that a few more months and the hangings would have caught and the house possibly been lost.

The object of my letter is to caution those who contemplate alterations to their houses not to allow the insertion of wooden plugs or grounds if the wall is in any way connected to a flue.

LEGAL.

The Collapse of Houses in Dublin.

The Dublin coroner concluded, on September 16th, the inquest on the seven persons who were killed by the collapse of two houses in Church Street on September 2nd. Mr. John Clancy, K.C., who appeared for the Corporation, made a statement in which he said the Corporation, whom it was sought to make responsible in some way for the accident, had a large staff and four inspectors who were constantly engaged in inspecting and reporting on old buildings. In 1912 533 notices had been served on owners, 150 summonses had been issued, and 99 houses had been taken down, and measures had been initiated for sweeping away the whole neighbourhood in which the accident took place.

Evidence was given by the Corporation inspector, Thomas Walsh, who said that the two houses, which had been repaired, appeared to be secure. After the accident he came to the opinion that a failure had taken place in the pier of the chimney, or that some portion of the chimney breast had been cut away. Whether the weakness was of long standing or caused recently he could not say. Lieutenant Myers, of the fire brigade, who was called, expressed the opinion that there was no explosion of gas.

The jury found that death in each case was due to the various injuries received and as set out in the medical testimony. They were of opinion that the cause of the collapse of the houses was unforeseen, and they had not sufficient evidence to show what caused the houses to fall.

A "PERFECT HOME" EXHIBITION.

At the last Ideal Home Exhibition at Olympia, Prince Alexander of Teck, on behalf of the Middlesex Hospital, enlisted the active sympathies of many well-known ladies, who decorated a number of dinner tables in accordance with their individual taste. The exhibit attracted so much attention and was so great a financial success that for this year's exhibition Prince Alexander has initiated a more ambitious scheme. This is the creation of what may be described as a "perfect home," each room of which has been arranged, decorated, and furnished by a well-known lady. Queen Alexandra assented readily when asked to help, Princess Alexander of Teck freely gave her assistance, and every one of the other eight ladies promised to do all that lay in their power to further the scheme.

Nearly all the plans and scheme of decorations have been completed, and the furniture has either been chosen or is in the course of special manufacture. The nine rooms and the garden will occupy the whole of the Minor Hall in the gallery at Olympia.

The day and night nurseries, designed by Queen Alexandra, have walls of a light neutral colour with a quaint pictorial frieze placed at just the right height from the floor for a child to see. The nursery is lighted by a big square bay-window, with a large window seat which forms a box for toys. The furniture, "child size" in all details, is of sycamore, wax polished, and the chimneypiece is bright with pictorial Dutch tiles. The hygienic details have been carefully considered. Every angle in the room has been curved off from the floor to the ceiling in order to prevent

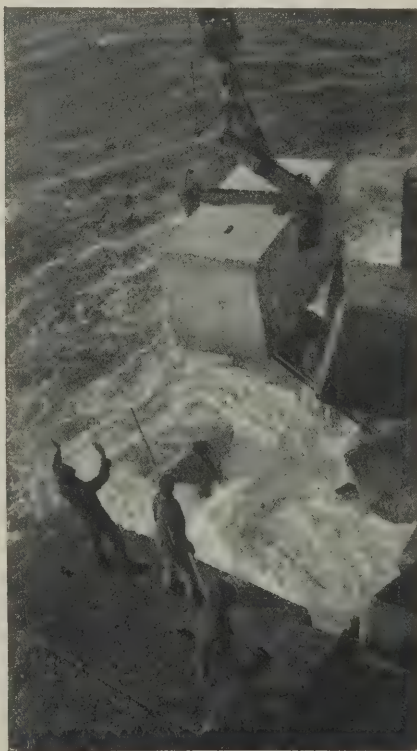
the accumulation of dust, and to make the work of cleaning easy. Adjoining the nursery is a bathroom fitted with a child's porcelain bath, wardrobe, etc.

The Adam drawing-room, designed by Princess Alexander of Teck, has panels filled with an old Wedgwood blue "brocade." China cupboards fill shaped recesses on either side of the window. The chimneypiece is a reproduction in inlaid marble of an Adam example. There is a crystal chandelier in the centre, and the furniture is fine old satinwood decorated in the Angelica Kauffmann style.

The Georgian dining-room, designed by the Duchess of Rutland, is of the 1750 period. The wooden panelling is painted an old ivory-white. Lady Anglesey's English eighteenth century bedroom has a panelled dado of white surmounted by a Chinese wallpaper. The Venetian bedroom, designed by Lady Lytton, is hung with a deep rose silk damask. The floor is stencilled in black on a white ground. Lady Plymouth's William and Mary library is enriched by silvered carved wood. The seventeenth century parlour, designed by Lady Islington, is panelled in a simple old grey oak. Lady Holford's Tudor hall has tapestry panels and an oak-beamed ceiling. The floor is of old oak with an Oriental rug. The Queen Anne boudoir, designed by Lady Speyer, has green panelled walls, with a powder-blue carpet and powder-blue silk damask curtains. Lady Wolseley's old English garden will be characterised by random stone paths, clipped box hedges, and old-fashioned flowers. The leaden and stone figures are characteristic of the period chosen—that of William and Mary.

The decoration and furnishing of the rooms has been undertaken by Messrs. Waring and Gillow, and the work in the garden has been executed by Messrs. Cheal and Sons, of Crawley.

The Lord Mayor, accompanied by the Sheriffs, will visit the Ideal Home Exhibition at Olympia on the afternoon of Monday, October 13.



LOWERING A CONCRETE BLOCK INTO POSITION ON EAST LONDON HARBOUR WORKS, CAPE COLONY.

LECTURES ON ARCHITECTURE.

Museum Lectures.

The University Extension Lectures this session include a course on "Ancient Architecture," and another on "Renaissance Architecture," by Mr. Banister Fletcher, F.R.I.B.A., author of "A History of Architecture on the Comparative Method." These lectures, illustrated by lantern slides and models, have the great advantage of being delivered in the British Museum and the Victoria and Albert Museum respectively, each museum being a treasure-house of the art of these periods. Lord Sudeley has drawn attention, both in the House of Lords and in the daily Press, to the need for explanation and elucidation of the art treasures which, for the want of guidance, are for many people merely the buried treasure of our museums. These lectures, on a definite subject and a systematic plan, describe the work of men's hands in past ages, as well as town-planning, past and present, and the evolution of architectural styles, while they afford a unique opportunity of visiting the museum exhibits. The interest in this subject is steadily increasing, and Earl Curzon of Kedleston, who has just lately saved Tattershall Keep and its famous mantelpieces from destruction, has joined the committee for these lectures on architecture. Particulars can be obtained from the Hon. Secretary, 10, Woburn Square, W.C.

Central School of Arts and Crafts.

In connection with the University of London, a fully illustrated course of lectures on "The Art and Craft of Architecture" is to be given at the Central School of Arts and Crafts, Southampton Row, on Thursdays at 8 p.m., commencing October 2nd. In the Michaelmas Term Mr. S. C. Kaines Smith, M.A., will deal with the growth of decorative arts from 1050 to 1550 A.D., to be followed by twelve lectures on "The Art and Craft of English Architecture," by Mr. Theodore Fyfe, F.R.I.B.A. The chair at the first lecture will be taken by Professor Lethaby. The fee for the course is 7s. 6d.

University College, Gower Street.

A course of ten public lectures will be given on successive Thursday evenings, at 6 o'clock, at University College, Gower Street, by Mr. A. E. Richardson, F.R.I.B.A., on "The Work of the English Architects of the Eighteenth Century and of the Neo-Classic School of the Nineteenth Century." These are the Carpenters' Company University Lectures on Architecture, and at the introductory lecture, on October 16th, the chair will be taken by Mr. John Hooke, Master of the Company. Mr. Richardson's subject is peculiarly opportune.

East London Harbour Works.

By courtesy of our contemporary "Syren and Shipping," we reproduce on this page an interesting photograph showing a large concrete block being lowered into position on the new harbour works in course of erection at East London, Cape Colony. During the last few years important additions have been made to the quayage, there being about 4,200 ft. on the east bank and 1,400 ft. on the west. The wharves are well-equipped with powerful electric, hydraulic and steam cranes up to 50 tons capacity, with railway lines connecting with the main lines.

NEWS ITEMS.

Architect as Mayor.

Mr. Frederick Ball, architect, has been chosen as the next Mayor of Nottingham.

Changes of Address.

Mr. Alan Brace, architect, has removed to 16, Old Buildings, Lincoln's Inn, W.C. Telephone: 5046 Holborn.

Mr. C. J. Scott, architect, has removed to The Willows, Chiswick Mall, Hammer-smith, W.

Fall of a Chimney-Stack.

Five men were killed and several injured by the fall of a steel chimney across a fishplate mill at the Workington Iron and Steel Company's Moss Bay iron and steel works at Workington, on September 16th. The chimney was 180 ft. in diameter and 18 ft. 6 in. at the base, and the cause of its fall is not yet apparent.

Road Board Grant to Nottingham.

It is understood that the Road Board have made a grant of £3,000 to the Nottingham Corporation for widening purposes connected with the new route to Dunkirk. Certain work was essential with regard to one or two bridges, and it is believed that the Road Board's offer is contingent upon other incidental work being done.

Marriage of Mr. F. W. Yerbury.

The following excerpt from "The Times" of Friday, August 29th, relates to the marriage of the Secretary of the Architectural Association:

"Yerbury—Bendall.—On Thursday, August 28th, 1913, at Cricklewood, Francis Roland, second son of the late F. W. Yerbury, grandson of the late R. A. Yerbury, to Winifred Constance, only daughter of Henry Bendall."

Municipal Housing at Stafford.

The work of erecting by the Corporation sixty working class dwellings at Stafford has been commenced and good progress is being made with a batch of twenty in Coton Field. These are to contain a living room, scullery, and three bedrooms, and the letting price is 6s. per week. The twenty houses on the Lammascote estate are to have three bedrooms, living room, scullery, and a parlour, while baths will probably be fitted in half of them. Seven shillings rent is to be charged for these houses. The remaining twenty are in Backwalls South. In some of these there will be two bedrooms and in others three, besides living and scullery accommodation. The dwellings with two bedrooms are to be let at 3s. 9d., and those with three at 4s. 3d. per week.

Extension of Masonic Hall, Tyne Dock.

Extensions to the Masonic Hall, Tyne Dock, which have been carried out by Mr. Milton Swales, contractor, of South Shields, to the designs and under the superintendence of Mr. J. H. Morton, F.R.I.B.A., Newcastle and South Shields, comprise, on the basement level, a spacious banqueting room approached by a handsome staircase from the hall on the ground floor. On this floor are placed the cloak rooms and lavatories and the club, consisting of smoke room, billiard room, card rooms, and kitchen department, and on the upper floor are the members' room and ante-room for robing, leading to the new lodge room or Masonic temple. The

lodge room has been treated in the Pompeian style with walls of a golden hue and crimson mouldings, with a blue ceiling.

Pershore Abbey.

About £5,000 is required for the repair of Pershore Abbey Church, Worcestershire, which is a tenth-century foundation, the most ancient parts of the existing fabric being the south transept, which is of Norman date, and the fine tower. The advice of Professor Lethaby and Mr. Harold Brakspear has been obtained and they agree that immediate steps should be taken to secure the vaulting, the roof, and the walls from ruin.

Cloth Fair Improvement.

Keen opposition is expected in the City of London Court of Common Council to the proposal to improve the Cloth Fair area at a cost of £200,000. Those in favour of a new street to relieve the Holborn, Newgate Street, Cheapside, and Mansion House traffic have alternative schemes in view, but as the Corporation has already refused to entertain one such new thoroughfare which, it is said, would have cost £6,000,000, it is unlikely that the advocates of a new street will get any further. However, it appears likely that they will succeed in defeating the Cloth Fair proposals.

A New Standard of Light.

At the British Association Meeting at Birmingham Mr. J. F. Forrest read a paper on "The Electric Arc as a Standard of Light." The problem of providing a standard of light which shall be exactly reproducible under given simple conditions is one that has long engaged the attention of physicists and engineers. It was suggested many years ago that the crater of the electric arc should be utilised for this purpose, as the temperature, and therefore the luminosity per small unit of area, is constant. The difficulty has been to maintain the arc in a definite fixed position, but this the author now claims to have overcome by using three carbons.

Architectural Association Athletic Club Annual Sports.

The annual sports of the Architectural Association Athletic Club will be held on Saturday, October 4, on the club ground at Elstree. Members of the R.I.B.A., the Royal Academy Schools, the Society of Architects, the Surveyors' Institute, the Junior Institute of Engineers and all allied societies on becoming members of the club may enter for club events. In addition to club events there will be events open to members of the Elstree Athletic Club and certain open events. There will be a display of hammer and discus throwing under the management of Mr. F. A. M. Webster, of the Amateur Field Events Association. The sports will begin at 2.30 p.m. Mr. W. Curtis Green, F.R.I.B.A., President of the Architectural Association, is chairman of the club, and Mrs. Curtis Green will give away the prizes. The meeting is the first to be held under the new conditions. Particulars are to be obtained from the Sports Secretary, 18, Tufton Street, Westminster, S.W.

Homes for Aged Miners.

Twelve new homes for aged miners were opened recently at Brandon Collicry, when the interesting statement was made that up to the present the workmen had contributed £333 and the owners £200, the amount received from donations and

subscriptions being £668. The cost of the erection of the twelve homes was £1,650. The list of homes now includes at Haswell Moor 113 homes with one single men's home, with ten men in; at Shincliffe and Houghall sixty-four homes, with one single men's home, with eight men in; and at Middlestone Moor, eighteen homes, with one single men's home, with fourteen men in. The following places contain homes to the numbers stated: Wallace Village, 30; Esh Winning, 20; Ushaw Moor, 20; Hare Law, 15; Crook, 14; Shildon, 12; West Stanley, 12; West Pelton, 12; Langley Moor, 6; St. Helens, West Auckland, 6; Tow Law, 6; Boldon, 8. At Sherburn there are twelve homes near completion, and at Ebchester a start had just been made with twelve. The districts now levying themselves for the building of homes were: Birtley, Wingate, Hetton, Thornley, Trimdon and Deafhill, South Shields, and Browney. In addition to the above the following homes have been erected which are not under the general committee, namely: Lord Joicey Homes, 12 at Tanfield Lea, 12 at Penshaw; Simpson's Memorial Homes, 11 at Ryton; Perkin's Memorial Homes, 12 at Birtley, 6 at Cockfield, 12 at Brandon, 12 at Willington, and Mrs. Joicey's Homes, at Tanfield Lea.

PROJECTED NEW WORKS.

Proposed Wolfe Memorial Church.

The Rev. F. G. Scott, Canon of Quebec, who is just concluding a visit to London, is endeavouring to stimulate interest in a project for erecting "a great and beautiful chapel in Quebec as a memorial to General Wolfe."

Glasgow Municipal Buildings.

Plans for the extension and alteration of Glasgow municipal buildings, at an estimated cost of £168,228, have been adopted. The space required for the accommodation of the different departments is 93,000 sq. ft. of floorage.

Suggested New Scottish Highway.

Partly as a result of recent observations by Lord Shaw of Dunfermline as to the desirability of constructing a railway across the North of Scotland from east to west, the feasibility of anticipating this development by the construction of a great new trunk roadway is being discussed. The proposed new highway would run from Aberdeen to Fort William. There are no very formidable engineering difficulties, and the total cost is put at £40,000. The country which would thus be opened up to motorists is perhaps the finest in Scotland.

Developments at Bradford.

Plans have been passed by the Bradford Corporation for the following: Additions and alterations to parish church schools, for the vicar and wardens; additions to printing works at Peckover Street, for Mr. G. G. Walker; petrol stores at Leeds Road, for the Bradford Corporation; wool warehouse at Thornton Road and Quebec Street, for the trustees of Mr. S. Bower; wool working shed at New Lane Mills, Laisterdyke, for Messrs. W. and J. Whitehead, Ltd.; Sunday schools at Wyke, for the trustees of the Wesleyan Society; spinning shed at Leicester Street, for Mr. J. Barker; gymnasium, assembly room, and two class rooms, for the vicar and wardens of St. Clement's Church; electric-

city sub-stations at Odsal, for the Bradford Corporation; machine shop, gas-engine house, brass foundry, and offices at Clayton Road, for the Universal Metallic Company, Ltd.; wool store and wool combing warehouse at Planetrees Road, for Messrs. Pickles and Rae; cinematograph hall at Low Moor, for Mr. J. Brayshaw; warehouse at Alston Works, for Messrs. I. Holden and Sons, Ltd.; and weaving shed and warehouse at Bartle Lane, for Mr. S. Dracup.

New Municipal Works.

The Local Government Board have decided to hold, or have recently held, as the respective dates indicate, inquiries into proposed expenditure by public bodies as follows:—

Water Supply.—Southampton Borough Council, £3,500 (September 23rd); Herford Borough Council, £3,446 (September 24th); Grange Urban District Council, £1,500 (September 26th).

Sewerage, Drainage, and Sewage Disposal Works.—Carlisle City Council, £6,800; Beverley Rural District Council,

no amount stated; Chesham Urban District Council, £3,363; Maidstone Borough Council, £1,900; Chorley Borough Council, £4,463 (September 23rd); Beeston Urban District Council, £27,000; Farnborough Urban District Council, £2,700 (September 24th); Leicester Borough Council, £121,186; Leigh-on-Sea Urban District Council, £1,820; Willesden Urban District Council (culverting), £1,084 (September 25th).

Street Improvements, Roads, Public Pleasure Grounds.—Chorley Borough Council, £2,299; Deal Borough Council, £1,540; Clacton Urban District Council, £3,380 (September 23rd); Formby Urban District Council, £1,250 (September 25th); Blackpool Corporation, £4,100 (September 26th).

Various.—Godstone Rural District Council, housing, £2,125; Hayes Urban District Council, ditto, £4,925 (September 22nd); Southampton Borough Council, electricity undertaking, £16,720; refuse destructor, £4,400; Evesham Rural District Council, housing, £6,350; Hitchin Rural District Council, ditto, £1,150, ex-

clusive of land; Carlisle City Council, extension of electricity plant, £7,500; Maldens and Coombe Urban District Council, extension of council offices, £2,050 (September 23rd); Farnborough Urban District Council, refuse destructor, £2,100; Bacup Borough Council, electric lighting, no amount stated; Lower Bebington Town Council, refuse destructor, £2,650; Southgate Urban District Council, extension of council offices, £7,800; Peabworth Rural District Council, housing, £2,140 (September 24th); Leeds, electricity undertaking, no amount stated; St. Thomas Rural District Council, housing, £1,300 (September 25th); Sidmouth Urban District Council, housing, £11,300 (September 26th).

COAL TAR AS A PRESERVATIVE FOR METAL WORK.

That dehydrated coal tar is one of the most effectual preservatives for metal work has never been disputed, but judging from the experience of the Military Engineering Department at Brest the product is rendered far more durable by the addition of a small quantity of quicklime. This is particularly the case when the ironwork is exposed to a brackish atmosphere. For the experiments conducted in the present instance a mixture of one part of lime to two parts of coal tar was used, this being heated to boiling point in a cast iron pan, and triturated meanwhile. The mixture is brushed upon the ironwork at a temperature of about 120 deg. F., which facilitates the application of a thin coating, and about two days are required for drying. In all cases the tar should be used over a coat of red lead, the total cost (including labour) working out at about 8d. per square yard. The first experiments were conducted on a metal door, which after twelve months showed no traces of oxidation, whereas ordinary paint could be made to withstand the corrosive action of the atmosphere for only about six months. Utility, however, is not the only point to be considered; and the coal tar is in competition not with ordinary but with special paints, which are far more enduring.

EDUCATIONAL PROGRAMMES.

Practical Instruction in Reinforced Concrete.

The necessarily intricate theory required for reinforced concrete scarcely renders that important form of construction a popular study. A very practical course of instruction at the Westminster Technical Institute may therefore commend itself to those who desire to master the subject during the coming winter. We note from the syllabus that complete tests of the deflections and breaking loads on actual beams, members, and test cubes are used to illustrate and test the accuracy of theoretical calculations, the members tested being made during the lectures and tested at varying ages. The cements, aggregates, and reinforcements used are also tested by the students. Practical examples of design are to be worked out during each lecture, use being made of plotted curves of standard formulæ to reduce to a minimum the amount of calculation involved. A new testing machine is being installed by which loads up to 20 tons can be imposed and extremely minute deflections recorded. The lecturer, Mr. P. J. Waldram, has on more than one occasion dealt with the subject in this Journal.



PORTE ST. DENIS, PARIS.



ARCH TO MANHATTAN BRIDGE, NEW YORK.

(See page 323.)

GLASGOW BUILDING TRADES EXHIBITION.

Glasgow Building Exhibition, which was opened on September 20th, will close on October 4. It has been organised by Messrs. H. Greville Montgomery and Hugh C. Montgomery and is housed in the Zoo Buildings, New City Road. A feature that should prove of exceptional interest in view of the agitation with reference to the housing problem, is a model cottage, designed by Mr. John Allan, Stirling. The cottage, which is self-contained, is adapted for single and continuous dwellings, with back gardens, and with or without front plots. It has two rooms, kitchen, scullery (with boiler, sink, tub, and cellar), bath-room, three presses, and a fair-sized lobby, the bath-room and scullery being so arranged as to be easily watered and drained without drains passing through any part of the house. The exterior is treated in Scottish style, and the interior is washed in simple colour, as being healthier than papered walls. It is claimed that the cottage gives the most accommodation that can be provided at a moderate cost.

The British Ceresit Waterproofing Co., Ltd., of 100, Victoria Street, London, S.W., we are requested to note, have an exhibit demonstrating the power of "Ceresit" as a water and damp resister for all kinds of structures.

THE LONDON LABOUR TROUBLES.

The London Master Builders' Association have informed the painters that as soon as they return to work the association will be prepared to consider their demands. The association adhere to their determination not to be in any way bound by the agreement reported to have been arrived at between the London Master Decorators' Association and the men.

With respect to the dispute with the labourers, the men's delegates, after conference with the London Master Builders' Association, undertook to recommend the employers' proposals of a halfpenny increase six months from the date of signature, with rules similar to those applying to other trades. The labourers, however, have rejected these offers, and demand that the increase shall take effect in the third week in October, and that overtime rates shall be as follows: Saturdays, time and a half from 12 noon to 4 p.m.; double time after that. Weekdays, time and a quarter from 5 to 7 p.m., and time and a half after. Failing these concessions, the men would hand in their notices to-day (Wednesday).

FIRE TESTS WITH GLASS.

A test of three window-openings filled in with Luxfer electro-glazing by the British Luxfer Prism Syndicate, Ltd., was conducted by the British Fire Prevention Committee on May 7th, and the official report upon it is now published.

The object of the test was to record the effect of a fire of 90 minutes' duration, the temperature to reach 1,500 deg. Fahr., but not to exceed 1,650 deg. Fahr., followed by the application of water for two minutes on the fire side. Three openings were respectively filled—(1) with a steel frame divided into two lights, of equal size, into which the glazing was fixed with angle-iron stops; (2) glazing bedded in a

brick reveal, two lights, with a concrete transom between; (3) glazing fixed with angle-iron stops in a steel frame divided into two lights of unequal size, one panel of the glazing in this opening being above the standard size of 2 ft. by 2 ft.

The results of the test are thus summarised: (1) Neither fire nor water passed through the glazing. (2) Fire did not pass through this glazing, but the force of the jet caused five small holes in the lower light, one in each of five squares. (3) Neither fire nor water passed through this glazing. No bulging took place during the fire test, and in the result all these samples of Luxfer glazing were placed in the highest class to which glazing can attain. Luxfer behaved splendidly in successfully enduring a 90 minutes' test at temperatures exceeding 1,500 deg. Fahr. and thus demonstrated most convincingly its ability to stop the spread of a fire of considerable severity.

OBITUARY.

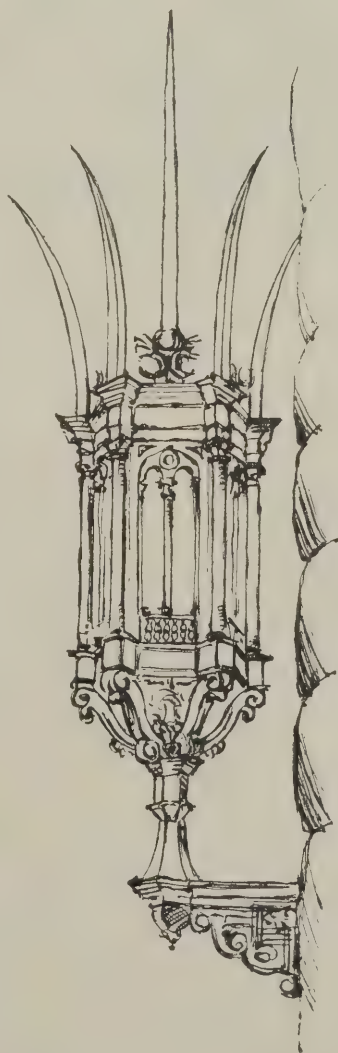
Mr. F. Dashwood.

Mr. Frederick Dashwood, a well-known personality in the building trade, died a few days ago at the age of seventy-two. For many years he was with Mr. George Vickery, architect, of Gresham Street, and in that capacity supervised the erection of a number of large buildings in the City of

London. In 1881 he and a few other clerks of works founded the Clerks of Works' Association, subsequently becoming the general secretary, and retaining the position until a week or two before his death. For many years he had assisted the Carpenters' Company at the annual examinations of students of their trade training classes.

TWO EXAMPLES OF "INSPIRATION."

We illustrate on this and the preceding page two striking instances of "inspiration" in architectural design—the one a monumental arch in connection with the Manhattan Bridge, New York, the other a large lantern for the Cleveland Post Office and Custom House. The former is shown in comparison with the Porte St. Denis, Paris, the latter in comparison with the lantern at the angle of the Strozzi Palace, Florence. These illustrations do not call for extended comment, being self-explanatory, but it may be added that in these two cases a respect for great works of the past has been carried so far as almost to make one think that the French and Italian masters had come to life again and had essayed a repetition of some of their earlier successes.



LANTERN ON STROZZI PALACE, FLORENCE.



LANTERN FOR U.S. POST OFFICE AND CUSTOM HOUSE, CLEVELAND, OHIO.

SUGGESTIONS FOR THE NEW SCIENCE MUSEUM.

Mr. T. J. Cobden Sanderson offers some striking suggestions for the decorative treatment of the new science museum to be erected in South Kensington. A science museum, he holds, has, or should have, two aspects, the one upwards towards pure science, the other downwards towards applied or instrumental science; and both should find expression so far as possible in a museum of science. Pure science is no doubt difficult to represent, as it must be conceived of in the main as incorporeal, but perhaps the difficulty might be got over to some extent by representing, not science, but that of which science is, or tends to become, the intellectual equivalent, the Cosmos, and his proposal is that the Cosmos should take the place of pure science, the upward-looking aspect of the museum, and be presented in its corporeal symbols, the heavens, the sun and its attendant planets, and, more particularly, the earth.

Perhaps I may illustrate my proposal by

describing what has been done at the American Museum of Natural History in New York by Professor Osborn, its distinguished President. On crossing the threshold of the museum one finds oneself immediately in the presence of the supreme idea, I may say intuition, of science, the solar cosmos, in which are involved all the laws which it is the function of pure science to disclose or make explicit. Suspended from the roof is a rough symbol of the sun, and ranged round it, also suspended from the roof, are the planets. The attention of the visitor, first fixed upon these, is then concentrated upon the one planet with which man is particularly concerned, the earth—first as a whole, in two large associated hemispheres, then in distribution over the various galleries from the point of view special to the Museum, the evolution of life-forms upon and within and in relation to the earth.

This cosmic presentment, at the threshold, of this supreme idea or intuition of science is at present tentative and, as I have said, rough, but in a letter recently received the President writes to me: "I

hope some day I shall have the pleasure of welcoming you to the Museum again. Our Hall of Astronomy, while projected on a magnificent scale, has been delayed, temporarily at least, so I could not show you any notable advance along that line, but we have splendid plans." And Dr. Holland, the Director of the Carnegie Institute in Pittsburg, referring to the American Museum of Natural History, in his article on Museums of Science in the new "Encyclopædia Britannica," says to the same effect that "provision for its growth and enlargement has been made upon a scale of the utmost magnificence."

Mr. Cobden Sanderson's purpose is to inspire the promoters of the new Science Museum with the same spirit of "magnificence" and with the same "splendid plans," and there is really no limit to the splendour of the scale upon which the symbols of the highest of man's intellectual intuitions may be represented, save the wealth and imagination and devotion of the community.

From a great dome overshadowing the hall might be hung in suitable imagery the symbols of the Solar Cosmos, the sun and its attendant planets, and on the floor of the hall might be erected a vast globe, such as the late M. Reclus dreamed of constructing, on which, without distracting detail, might be figured the greater terrestrial phenomena, together with the achievements of man which in their range and importance approach to equal rank with the phenomena of the earth, being based on them and bending them, through science, to great human uses.

And round the cornice of the dome, star illumined, might be engraven some suitable exclamation of astonishment wrung from man by the stupendous wonder of the universe, as for example that sublime invocation of the Psalmist:

"Praise ye the Lord!
Praise ye Him, sun and moon,
Praise Him all ye stars of light,
Praise Him, ye heavens of heavens,
And ye waters that be above the heavens,
and so on to the end,
Let them praise the name of the Lord,
For His name alone is excellent,
His glory is above the earth and heaven,
Praise ye the Lord!"

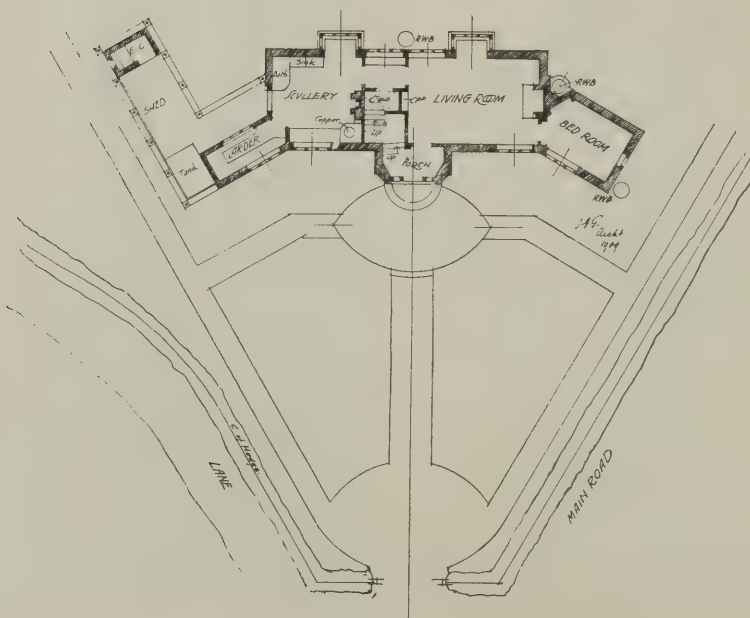
And place might be found for the names and busts of the great astronomers and others whose eyes throughout the ages have been fixed upon the heavens and have revealed to us the magnificence of our habitation.

The other aspect of the Museum—applied science—might then be arranged throughout the Museum in subordination to this, its central and supreme idea.

Only in some such way, only by some such "splendid plans," can a Museum of Science, especially of the magnitude of the New Museum, be made to express its full significance.

GARDENER'S COTTAGE, OXFORDSHIRE.

The little building illustrated on this page was designed as a head-gardener's cottage on a site facing the angle formed by the main road with a side lane. The position gave the suggestion for the plan. The walls were intended to be in hand-made red bricks with flint filling, the roofs being of hand-made tiles, and the wood-work externally of oak. An alternative design of similar accommodation and materials was eventually decided upon and erected. Mr. T. Frank Green, A.R.I.B.A., P.A.S.I., was the architect.



DESIGN FOR GARDENER'S COTTAGE, OXFORDSHIRE.

T. FRANK GREEN, A.R.I.B.A., P.A.S.I., ARCHITECT.

COMPETITIONS.

The Board of Trade Offices.

Concerning this competition, of which the conditions were given, with a site plan, in our issue of September 3rd, page 248, "An Intending Competitor" writes: "A glance at the plan and at the site showed at once that this should be one of the finest architectural opportunities which have been offered in London for some time past, but the chances of making the most of it is very much prejudiced by what seems a most unfortunate mistake in the manner in which it is presented to competitors. A line has been drawn across the centre of the building site, and we are invited to consider the southern half of the site as the portion to be built over first, particulars of the accommodation required being given for that half only, with a vague statement that the other half may be assumed to be essentially similar in arrangement. To divide a site across the centre in this way, and make, as it were, two jobs of it, is to place a serious difficulty in the way of evolving a great and comprehensive architectural scheme. The arrangement of plan which would be necessary for making the best of one half of the building would probably not be the best, either practically or architecturally, if the building were planned and designed as a whole. It would surely be wiser to allow the architects to work out the plan and design as a whole, and afterwards consider how much of it can be carried out in the first instance."

St. Germain's Church, Edgbaston.

Mr. Charles E. Bateman, F.R.I.B.A., 18, Bennetts Hill, Birmingham, has drawn up conditions, and will act as assessor in the selection of a design for the proposed new church to be built at the corner of Portland Road and Gillott Road, Edgbaston. We understand that the competition is restricted to Birmingham architects.

Each competitor shall send in a declaration that the design is his own work, and that the drawings have been prepared under his personal supervision. Two architects or firms may collaborate, but may only submit one design.

It is the intention of the committee to retain the services of the author of the design selected to carry out the work, unless there is some grave reason to the contrary, in which event the assessor will select another design, and his decision as to this and as to all questions in dispute which may arise shall be final and binding upon all parties.

Premiums of ten guineas each will be awarded to five other designs selected by the assessor.

If no instructions are given to the successful competitor to proceed with his working drawings within twelve months from the date of the award he shall be paid 1½ per cent. upon the amount of the proposed outlay, credit for which shall be given when the work is put in hand and he is paid his fees, which will be in accordance with the scale of the R.I.B.A. In the event of the building of the church being delayed for five years the payment of the 1½ per cent. shall be considered to be in full discharge.

Any questions competitors desire to ask upon these conditions shall be sent in in writing upon foolscap paper, in a column on the left hand side, to the assessor on or before Wednesday, October 1st, 1913.

The drawings shall be delivered to the assessor before one o'clock on Saturday, December 6th, 1913, with no distinguishing mark thereon; the author's declaration

must be enclosed in a sealed envelope, endorsed "St. Germain's Church," and returned with the drawings, which will be numbered on receipt.

The following drawings must be submitted: (1) Plan of foundations showing trenches for pipes and heating vault, a ground plan showing seating and fittings with a roof plan all to 1-16 scale. (2) Not less than two sections and three elevations to ½ scale, and some details to ¼ in. scale. (3) A block plan to 1-24 scale of the whole of the site showing the existing mission room in dotted lines which will be retained as a Sunday school and parochial hall as long as possible, the new church, a future clergy house with garden and the rebuilding of the hall, so as to form a complete scheme ultimately. An alternative scheme of lay-out may be submitted but not of the designs for the church.

The drawings (mounted on strainers or cards of imperial size) shall be in ink, the walls and sectional parts black; no colour except on the block plan and details.

The successful competitor shall provide approved and framed internal and external perspective drawings, suitable for reproduction, at a fee of ten guineas after the competition.

The suggestions of the Church Building Society and the Bishop of Birmingham's Fund shall be observed, and the authors are advised to refer to "The Parsons' Handbook."

It is not proposed to build the whole of the church at the present time, but the designs must show the complete scheme; provision must be made for 750 chairs, spaced 2 ft. 10½ in. by 1 ft. 8 in. in the nave, aisles, and morning chapel, 200 of which are to be in the future extension at the opposite end to the chancel. The number of places shall be marked at the end of each row on the plan with a schedule in the margin. A choir for about twelve men and twenty boys, with a space or gallery for a band.

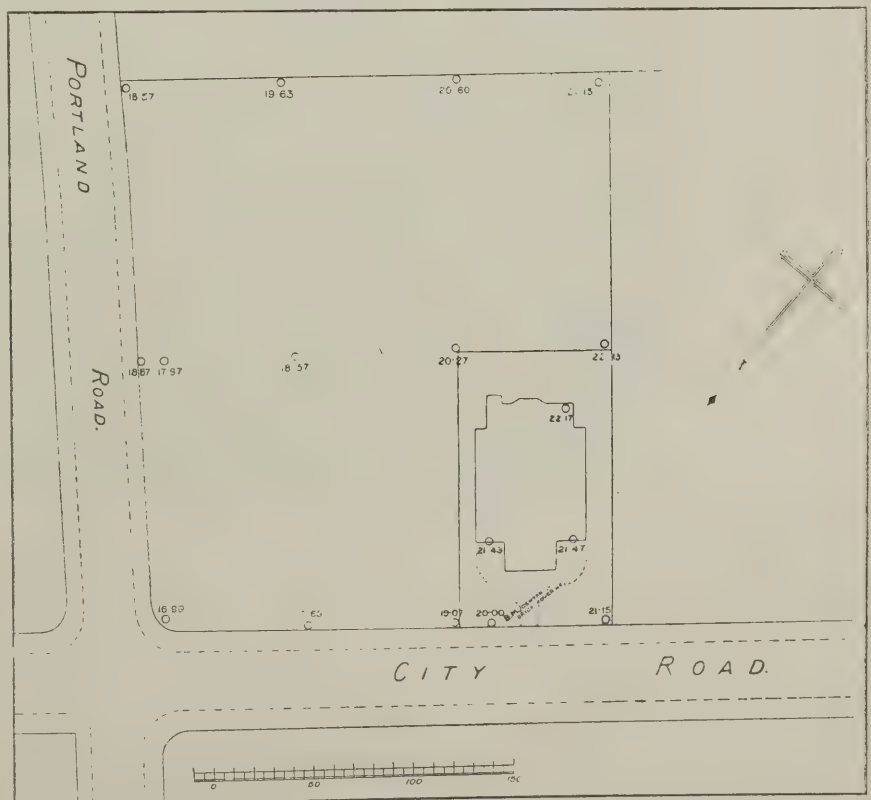
The following points will require careful

consideration and must be shown on the drawings: Ample doorways for exit with good protection from draught; the doors to open outwards. Priests' vestry with cupboards, safe, table, etc. Choir vestry oblong on plan for convenient assembly and marching into church, with accommodation for cassocks and surplices, hats and coats. Spaces for keeping altar frontals in a box, arranging flowers, and cleaning ornaments, etc., a sink with water laid on, also for cleaner's brushes, brooms, etc. Lavatory and w.c. Heating and ventilating. Organ not too much shut in, with ample openings for speaking into the church; it may be in a gallery, but the organist must be in touch with the choir. Ample space will be required for bellows and electrical blowing. Altar and reredos. Credence table. Seats for priests. Altar rail or kneeling desks, with ample space for passing along at the back of kneeling communicants. Communicants' approach and exit. Two priests' stalls. Litany desk. Lectern. Pulpit with sounding board. Font, cover, and ewer. Morning chapel and fittings. Electric light. Provision for a bell will be necessary. No tower is required at present. The design may be shown of a detached campanile.

As the funds available are limited it is thought that a basilica type of church having Byzantine character will prove the most suitable, scale and proportion being preferred to elaborate detail, for which funds are not available; possible future colour decoration should be borne in mind. Materials of good quality will have to be used.

The designs are to be based upon an expenditure limited to £6,500 for the structure, including bell, heating, lighting, drainage, and any necessary road fencing of the first portion, containing 550 seats; the authors shall give a schedule with estimates for the various fittings, etc.

A building surveyor has been appointed to advise the assessor on the question of



COMPETITION FOR ST. GERMAIN'S CHURCH, EDGBASTON, BIRMINGHAM: SITE PLAN.

cost, which is absolute, and no 10 per cent. margin can be taken for granted.

Any explanatory notes as regards the design and materials are to be given on the plans. No report is required.

Any competitor will be disqualified should he approach the assessor, his staff, the clergy, or any member of the committee to obtain any information, to disclose the nature of a design or attempt to influence them in any way, or should his design infringe the condition as to cost, or should it not comply with the conditions of the competition as above set forth.

If these conditions are returned on or before October 1st the deposit will be refunded.

The attention of architects is also requested to the following requirements as regards steps, etc.: (1) From nave to chancel not more than two (*i.e.*, two risers), and the width of the tread should not exceed 1 ft. 6 in. (2) At the Holy table not more than three steps in all, including the footpace. The width of the footpace should be about 2 ft. 6 in. all round the Holy table, and the two lower steps at least 1 ft. 10 in. In smaller churches the footpace alone or the footpace with one other step only is sufficient. (3) No step should be more than 6 in. in height. (4) The sanctuary steps should be so arranged that the communicants should kneel on the same level as the administering clergy. (5) The choir stalls should not be less than 5 ft. distant from the sanctuary steps.

Proposed Government Buildings, Ottawa.

The following is a summary of the conditions of this competition: Assessors, Mr. T. E. Collicutt, F.R.I.B.A., Mr. J. H. G. Russell, Pres. R.A.I. of Canada, and Mr. J. O. Marchand, and a member of the R.A.I.C. Competition closes January 2nd, 1914. Preliminary sketch designs required for development of complete departmental and courts buildings, the ground floor area of which is to be about 200,000 ft. super. The authors of six designs in the preliminary competition will be selected to submit designs in a final competition, each of the five unsuccessful architects in the latter receiving \$3,000. Author of design placed first to be appointed architect of the work. The competition is limited to British subjects.

Accommodation required: Courts building, total floor area of about 1,000,000 ft. super.

SUPREME COURT.

	Rooms.	Floor area. sup. ft.	Total area. sup. ft.
Court room	1	—	2,500
Conference room	1	—	800
Registrar's room	1	—	400
Registrar's stenographer	1	—	300
Clerk of Court	2	—	800
Vault in connection with above	—	—	150
Registrar's Court (chambers)	1	—	600
Judge's private rooms	9	400	3,600
Reporters' rooms	2	400	800
Sheriff	1	—	300
Secretaries to judges	2	400	800
Waiting room for counsel	1	—	400
Barristers' and counsels' room	1	—	400
Messengers' room	1	—	400
Library for the several branches	1	—	8,000
Clerical staff	3	400	1,200
Dining room and kitchen	2	—	500
			21,950

EXCHEQUER COURT.

	Rooms.	Floor area. sup. ft.	Total area. sup. ft.
Court room	1	—	2,500
Judge's private rooms	3	300	900
Registrar's private office	1	—	600
Registrar's public office	1	—	1,000
Chief clerk, adjoining registrar	1	—	600
Vault in connection with above	—	—	200
Registrar's court (chambers)	1	—	600
Deputy registrar	1	—	350
Stenographers	1	—	300
Messengers' room	1	—	500
Lunch room and kitchen	2	—	650
Waiting room	1	—	400
			8,600

RAILWAY COMMISSION.

Court room	2,500
Commissioners' offices and library	12,000
Secretary and assistant secretary's offices and record room	10,000
Traffic department, including record room	7,000
Chief engineer and assistants' offices	5,000
Fire department	2,000
Chief operating officer's department	5,000
Law department offices	1,500
General offices	5,000
	50,000

NOTE.—Provision to be made in addition to above floor area for corridors, staircases, elevators, lavatories, etc.

Drawings required: In first competition drawings to be to a scale of 16 ft. to an inch. (a) Plans of each floor, except where one floor duplicates another. (b) Three elevations. (c) Sections of each group of buildings. (d) Detail drawing to scale of 2 ft. to an inch of portion or bay of building. (e) Perspective drawing not longer than 36 in. (f) Block plan to same scale as plan sent with conditions. Each design to be accompanied by a short descriptive report with schedule of total area and cubic contents of each block of buildings. An engineer will be appointed and paid by the Government to instal power plant, heating, ventilating and illuminating systems. The architect will receive 2½ per cent. commission on the cost of all contracts for this engineering work as recompense for his services in consulting with the engineers and meeting their requirements in arrangement of building. The architect will receive the usual commission of 5 per cent. on whole cost of building proper as distinct from the above-mentioned engineering work.

We are officially informed by the High Commissioner for Canada that a notification has been received by cablegram from the Department of Public Works at Ottawa that the date for receiving inquiries from competitors has been extended to October 30th.

BEAUX-ARTS ATELIER IN LONDON.

There has been no break in the continuity of the Atelier work since its opening last February, and it was thought that it would be interesting to mark the approach of the winter session with an exhibition of some of the work done by the Atelier members and students during the past few months.

An informal gathering was held on Wednesday evening last at the Atelier.

The drawings on view comprised those executed for the twelve hours' Esquisse

Esquisse, the subject being "The Pedestal of a Bronze Equestrian Statue," and for the projects "A Town Residence for a Wealthy Art Collector," and "The Principal Elevation in a Court Yard of a Royal Palace," the latter sets including the rough Esquisses and the finished Rendus. There was also a large number of water colour holiday sketches of architectural subjects, in competition for prizes to the total value of £10.

The patron, Mr. Arthur Davis, gave a criticism of the architectural designs, explaining the reasons in detail which led the jury to make the various awards.

He was followed by Mr. Lanchester, who dealt with the water colour sketches, bringing out the salient points to be observed or avoided, in an exceedingly useful manner.

The awards of the jury were as follows: The Pedestal of a Bronze Equestrian Statue, mention, L. Sylvester Sullivan, A.R.I.B.A. The Principal Elevation in a Court Yard of a Royal Palace, mention, L. E. Carreras. A Town Residence for a Wealthy Art Collector, first place, W. C. W. Tirrell and L. H. Bucknell, A.R.I.B.A. Holiday Sketches (cash prizes), W. J. Newton, M.A., A.R.I.B.A. (£4), L. H. Bucknell, A.R.I.B.A. (£3), Wilfred Hoyle, A.R.I.B.A. (£2), Bryan Watson, A.R.I.B.A. (£1).

Besides the competition drawings there were a number of water colours, not necessarily architectural subjects, sent for exhibition purposes by members of the Atelier, including a number sent by one of the Atelier's members in Paris, Mr. H. Bartle Cox, A.R.I.B.A.

The meeting served the useful purpose of demonstrating in a practical manner the methods adopted in the Atelier.

LONDON MASTER BUILDERS' ASSOCIATION.

The first ordinary meeting of the Council after the summer vacation was held at the offices of the Association on Thursday last, the president, Mr. Walter Lawrence, jun., being in the chair. There was a large attendance of members. Important business which had come before numerous special council meetings and committees during the interval was reported and considered. The position in respect to the strike of painters was stated to be unaltered since the commencement of the month, when all the members of the Association were notified of the grant of 3d. per hour increase upon existing rates, in accordance with a resolution of the Council on May 15th last, earlier announcement of which had been delayed on account of negotiations which were proceeding with the London Association of Master Decorators. From reports received, members of the Association are experiencing very little difficulty in getting all demands supplied. New rules with the plumbers' societies have been agreed. The United Builders' Labourers' Union have been met in conference and a code of rules with that society, which claims to consist of men engaged only in the building trade, has been offered, and upon the acceptance the matter will be submitted to the members of the Association in general meeting at the earliest opportunity. The reports of the Finance and Special Rules Committees and proceedings of conciliation boards were received and adopted. The award of the Board of Trade conciliator relative to the plasterers has been already reported. Correspondence in reference to trade matters, etc., was considered and instructions were given.

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Volume XXXVIII. No. 977.

No. 52.



(From Piranesi.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

OCTOBER 1, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 38. No. 977

OUR NEW JOURNAL: A FOREWORD.

WITH this issue our paper appears in a new and enlarged form. The illustrations, which must always be the chief content of an architectural journal, are increased in number, and the more important of them are given as a series of loose unfolded plates in the centre of the paper. We have adopted this arrangement because we feel that photography and process-block making have altered the whole range and scope of architectural illustration. The buildings of the world, old and new, good, bad, and indifferent, stand clear before the camera. Their detail is exposed in a manner which the minutest measured drawing can hardly equal, while their very soul is stereotyped for leisurely dissection. This means that a new library of untold dimensions, and of a value to the practising architect far surpassing the grandest and most massive of eighteenth-century folios, can now be obtained, with proper selection.

All classes of work may thus be recorded, and the more careful of us can file the plates in such a way that, from time to time, when we feel the need of them, we can refresh ourselves with the good things we have stored. For such the architectural journal, so long as it includes the good things, is a newspaper even in its illustrations. This is a fact which should not be lost sight of. In its capacity as a purveyor of news and information it is bound to publish a number of buildings which (as those responsible for its conduct are aware) do not reach a high or permanent standard of architecture; yet such illustrations may be of interest in other respects, and it would not be keeping faith with the public entirely to ignore them. A newspaper must reflect the times it lives in, or die. But a well-directed journal may do more than that. While reflecting in its pages the work of its own day, it can help to mould that work. In spite of all difficulties it can be judicious in its selection of modern work; it can be absolutely judicial in its presentment of old work. Within limits, therefore, it can, like an artist, select and create.

To meet the double position of publishing what for various reasons is good or useful or interesting, or all three, in new work and what is good and permanent in old work, and to allow at the same time the utmost flexibility of selection and combination, we have decided on the system of single loose plates for the photographic illustrations, of a uniform size and character; while the detailed drawings, which require to be shown to a large scale in order that their minutiae may be studied, are given as double-page plates. We have even ventured to go a step further, and are putting our illustrations into groups. We suggest filing; in short, we indicate the volumes of the new architectural library.

These volumes will fall into two main divisions. There will be those which deal with constructional detail, which give modern and scientific methods of building. Prominent among these will be our series

of working drawings. The new type of highly-finished working drawing, accurate and clear to the last detail of finishing, and capable of showing when reproduced by photography all the changes of material without the addition of colour, is well illustrated by the admirable working drawing, one of a large set prepared for the superstructure of the National Museum of Wales, at Cardiff, by Messrs. Smith and Brewer, which is given in this issue. It is the type of drawing which American architects have carried to perfection, and one which must be increasingly used in this country for important work where modern construction obtains.

The other main division in the new architects' library we shall be making for our readers will comprise those volumes of plates that furnish material for the growing tradition of modern classical architecture. This movement, the most vital which architecture has seen for a hundred years, is not confined to any one country, America, France, and England are all sharing in it, and our plates will be drawn from each. The same problems face each country, and, what is more to the point, the same sorts of solutions are everywhere appearing. Many of these solutions have already permanent value, because this new cosmopolitan architecture has its roots deep down in the classical tradition of Greece and Rome. It is founded where our civilisation is founded. It is based, too, on accurate knowledge. It differs from the various Renaissance phases of architecture in that it is no mere gloss on antiquity. Knowing ancient detail clearly, it yet dares to use it in its purest forms. Antiquity is its compeer, neither blindly worshipped nor blindly ignored. Such architecture requires from its exponents detailed and exact knowledge. The sketches of picturesque bits and outlines which satisfied our parents are no foundation for the buildings which are required from our own generation. We must know the exact contours of mouldings, the exact values of enrichments. For us, then, the photograph is essential. It is the new messenger come to the assistance of architecture in the very hour of its need. It gives us more clearly than any drawing could give the very information that it wanted—hence the value of the series of illustrations of classical detail which we propose to publish.

A third division of our plates, susceptible of subdivision into several volumes, but which in time should come to be ranked under our second main division of modern architecture, is domestic work. As hitherto, we intend to illustrate this class of work very carefully and very fully. We realise it is the kind of work which the majority of our readers are engaged upon. It is, too, the work which gives the greatest scope for individual expression. That, indeed, is its danger. Signs, however, are not wanting that our much-praised domestic architecture, without losing its interest, is beginning to fall into line with the main body. Every day it is gaining in refinement and repose. A census of gables would to-day show a highly-diminishing

birth-rate. Crudities and crankiness of all sorts are disappearing. Tile-hanging is no longer the sign of a gentleman—rather the reverse—and chimneys are not now considered the proper architectural climax for a design. All this is making for saner domestic work, and it is our intention to illustrate every good example we can find. In the meantime, gently to assist the process without unduly hurrying it, we propose to publish a series of carefully-drawn examples of that very sane and very sound period of domestic work compendiously called Georgian. In the evolution of the perfect modern house, Georgian sanity and dignity must play an important part. It is a phase through which, on its way to the promised land, modern domestic architecture can hardly fail to pass. We therefore shall present each of our readers with a Georgian volume for the domestic section of his new library.

The illustration side of the "Journal," it will thus be seen, will receive the most careful consideration. But we are equally alive to the needs of practical building and the publication of all that relates to the business needs of architects and builders. Constructional articles, particulars of works in progress, reports of important law cases and legal information, a complete list of contracts open, and the hundred other interests that go to make up the everyday work of modern building—all will receive adequate treatment.

In this way, then, we may hope still further to enhance the value and interest of the "Journal"—an undertaking in the achievement of which we count upon the steady support of our many readers.

Chimneys and Charred Timber.

ALTHOUGH it seems certain that the effective cause of the fall of a steel chimney at Workington was revealed at the inquest on the five men who were killed in the accident, we are left perplexed as to a certain factor of considerable interest and importance. It was fairly conclusively established that the immediate cause of the fall was the "charring" of the timber—four rows of pitch pine—which had been placed between two layers of concrete in the foundations; but how the "charring" occurred remains a mystery, nor was the exact nature of the charring explained. That it was due to heat is assumed in the term adopted for it; but an expert witness at the inquest said "he could not see how the heat of billets from the heating furnaces when dumped on the ground near the base of the chimney could have been transmitted to the timber in the foundations, because the surface of the ground was covered with sand and gravel, and these were non-conductors." Non-conductivity, however, is not absolute—it is a question of degree; and sand and gravel might in time "lose their nature," as the workshop phrase has it, under the influence of repeated applications of great heat, or from other conditions which might convert them into conductors of heat. Nor may it be lightly assumed that we know all about conductivity. Heat may possibly possess powers of permeation similar to those which photographers have come to attribute to light. Given time, they tell us, light will penetrate cardboard boxes and several layers of supposedly light-resisting paper, and will at length find its way to the most carefully protected sensitised plates, to their ultimate destruction. It is not necessary to press the analogy in order to lend point to the suggestion that the conditions under which wood will char or otherwise decay when apparently thoroughly protected are worthy of thorough investigation, because the point is obviously of much more widely extended importance than that which is involved in its casual—and we should hope unique—relation to factory chimneys. There is, for instance, the very common case of timber inserted near flues, but supposed to be effectively protected by brickwork. Though flames cannot reach it, heat may char it or set up combustion, in spite of the brickwork, and this may

be the origin of many an unexplained outbreak of fire. With respect to factory chimneys, a further point worth recalling has been made by the eminent engineer, Herr Ostenfeld, who noticed that in the great storm of 1876, in which many tall chimneys were damaged, only those which were actually in action at the time were destroyed.

Professor Lethaby among the House Painters.

IT must have been rather gratifying than otherwise for Professor Lethaby to find that some of his observations, in the paper he read to the Master House Painters and Decorators assembled at Leamington, excited a certain amount of opposition. Adverse criticism of one's tenets shows at least that one has not dealt exclusively in *res judicatæ* that are too familiar to excite controversy. One critic, in complaining that the Professor had "almost deified white," greatly exaggerated the quite innocent observation that white is being increasingly used, and might with advantage be still more freely employed. It is a delightfully clean and luminous pigment, and, provided it can be kept in that condition, lends a refreshing charm to its surroundings. Why it is being increasingly used is not, one can imagine, because it has suddenly come into fashion, but because of the great improvement which in recent years has been effected in its manufacture. Whereas at one time it was never quite white at the outset, and soon lost what little purity it had, it can now be produced as one of the most dependable pigments in use, retaining its pristine snowiness for a surprising length of time, provided its environment is not too exacting. Even when used for exterior work, it bravely withstands the weather. Possibly the objection to it was based on a lurking fear that its extended application would advance the house painter at the expense of the decorator, to whom, one can understand, a white world, or even a White City, must be particularly abhorrent. Another of Professor Lethaby's critics protested against the monstrous autocracy of architects in the matters of specifying and supervising decorative work. All that need be said about this is that one wishes that more architects were in a position to lay down the law on the subject, and that more painters were in a position to dispute their ruling: which is only a slightly paradoxical way of saying that if the architect and the painter, each after his own kind, had plenary knowledge, mutual respect, conference and agreement would be much more common, to the advantage of both and the benefit of art. As matters stand, the one has too little confidence in the other to make conference pleasant and profitable.

Brobdignagian Mosaics.

THE saying that "London's streets are paved with gold" is generally understood as a reference to the cost of upkeep. It now appears that, in a fit of economy, the Corporation have in some instances resorted to mosaic-work. When, at a recent meeting of the Court of Common Council, Mr. Deputy Millar Wilkinson grew curious as to "why Gracechurch Street was paved with wood, while the equally important thoroughfare running into it was paved with asphalt," he was told that it was because wood was cheaper than asphalt—a reply that seems to be somewhat in conflict with the inquirer's notions of the relative importance of thoroughfares. The inquiring spirit then went further: "Was it not possible to secure a less mosaic appearance in the streets?" As seen from an aeroplane, they might perhaps justify the Deputy's simile. Brobdignagian mosaics may be tolerated in the rural regions of Sidcup, but London City is hardly an ideal situation for trial patches of paving on systems as diverse as wood and asphalt, nor should cheapness be the criterion of ultimate choice, supposing uniformity is resolved upon.

ARCHITECTURAL EDUCATION.

BY ROBERT ATKINSON, F.R.I.B.A., HEAD-MASTER OF THE ARCHITECTURAL ASSOCIATION SCHOOL.

THE subject of Architectural Education has, like everything else of late years, undergone tremendous changes, whether for the better or for the worse remains to be proved by that leveller of all "fads"—Time.

The once-popular method of articling a boy with some architectural friend of his father haphazard has not stood the test. It was naturally impossible that all boys should happen on clever masters, or even on masters who were interested in their pupils. Some old-fashioned offices kept a stock of casts and models which the budding architect was allowed to draw from in the intervals of tracing estate plans and printing up. These boys were lucky in that they were kept interested in their work; and probably the master gave his pupil a thorough grounding in the various details which passed through his hands. The majority of pupils, however, developed into civil engineers. They knew more about new roads and sewers than they did about Queen Anne or Greek windows. One-tenth the floor area and 9 in. outside walls were a sufficient stock-in-trade to do the cottage or the mansion. The finishings were bull-nosed or splayed. Sometimes, as the height of extravagance, a double window with a double bull-nosed mullion was introduced for paying clients.

Afterwards the office tuition was omitted. The pupil could be very useful from the very beginning—in rubbing ink and doing a lot of odd jobs. The evening school would make up for the lack of facilities. Building construction, geometry, and sometimes perspective were hard subjects set to try the determination of the embryo. (Much simpler to stay away and tell the parents he had been!)

Despite all drawbacks, the pupil eventually became quite keen, took architectural history, and discovered the beauty and the tales. He went large on every old church (Renaissance was still a closed book), made sketches on Saturday afternoons, took measurements, and worked half the night on fancy drawings, which probably received a book prize at the next "National." His holidays were spent cycling round old churches in East Anglia or Yorkshire, and he dreamed of Amiens and Beauvais. Then he was admitted to the Architectural Design Class, and began with a pair of villas or a week-end cottage—plenty of rough-cast, tile-hangings, and half-timber (not the 4 by 1 nailed on, which he knew so well at the office). It all seemed too expensive to be true. Surely no architect ever got jobs where he could have such wealthy clients!

The master did not always improve matters. That gable was very nice. Why should he not have one tiled and the other rough-cast? No Gothic building ever exactly balances. Some are very lopsided and picturesque; and then, again, the bellied columns to the porch were quite Elizabethan.

The next design was a village hall; and then a town hall in Free Classic—his first so-called Classical subject.

Eventually he secured a position as assistant, and saw his ideas in stone and brick. His principal thought the world of him, and advised him to go up to London and get into a big office for a while. How different it all was then! Nevertheless, he began afresh, and saw beauties in Mayfair and Bloomsbury which originally he scoffed at.

Things have changed since that time. The modern boy's parents get prospectuses from the various architectural schools. It is so easy to select a school with a reputation—one which turns out, if not geniuses, at least well-trained pupils. The backward boy has a chance. It is 2 to 1 that he will succeed instead of developing into an estate manager or throwing up

the work altogether. He gets every facility for gathering knowledge, and it is his own fault if he does not uphold the reputation of his school.

The school system has now weathered the first lean years. All large towns have developed their own; London possesses two or three: the student does two or three years, equal to about ten years of evening schools, and enters an office with a mind well prepared, a trained memory, and an eye for design and effect, probably a terrific bump of inquisitiveness, and he is a thorough nuisance to all the other assistants. They are not paid to answer difficult questions. Why, the fool can't trace a line; he doesn't know what French chalk is for. Higgins has superseded Sticks, thank goodness. They can't start him on that, so perforce he is put on to $\frac{1}{2}$ in. details of doors and staircases—a great drop from monumental town-planning and Prix de Rome subjects.

A year or two at that is called "office routine." He sees how the Boss differentiates between clients and builders or commercials. That is "Tact." He hears rows about ancient lights or party walls, perhaps has the privilege of making a survey for same. That is Professional Practice. The only thing he never sees or hears about is how the Boss makes out his bills, and whether he gets his cheques or not; that is reserved for actual practice.

The architectural school, therefore, teaches a man how to win a reputation, helps him to become a man of weight, teaches him the rudiments of design and construction, but does not and cannot teach a man Tact or Professional Routine. Tact is a gift of nature. Combine it with a good training, and the student has every chance of becoming a successful business man.

The student in the school reverses the order of the one-time learning. Instead of having to find out for himself what is good and why, he is led to good examples. Nothing but gems are offered to his pen. He begins at the end, as it were, and, without knowing it, is made familiar with treasures. The corn is winnowed before it reaches him. The student is kept to academic design; he can blossom into Neo-Grec or *l'art nouveau* afterwards if he likes, and they will both be the better for a good foundation.

The choice examples of the ancients, from the Greek period to the eighteenth and nineteenth centuries, are at his beck and call; they have stood the test of time; we are sufficiently removed to pick the good from the bad without misgivings, and without bias. To take recent examples for study is to fall upon thorns. Who is to say our taste is good or not? In ten years it will be changed again and our ideas reversed.

Books are the architect's brains. He lives by his books. His knowledge is measured by his well-thumbed library. They are the fountain of his ideas and the well of his cribs (more or less deep and dark). The modern student has every good building at his fingers' ends; he knows where to find material and ideas for all his requirements, and he is trained not to misuse them. He is a student only so long as he needs to seek knowledge; when he can dispense with books he is an architect fully fledged (the books are there, but he is not conscious of it—that is the difference). He has begun to evolve, and that is genius. A good library, then, is essential to a school.

Shadows are *de rigueur* at present; they are projected first, to give the student something to do; secondly, to learn draughtsmanship; and, thirdly, to teach him to appreciate the modelling of a front on a flat drawing.

The comparison of photographs and line drawings

of existing buildings will give a good idea of the value of voids, solids, and projections, but with new buildings the photographs are not available.

With an academic training no special modern fashion can be unduly favoured, and the changing of fashion should leave the training undisturbed. Minute details of ornaments used in all periods should be traced back to their very beginning, and some idea of the gradual conventionalisation and evolution obtained.

Finally architectural training is a wide subject; only bits of it can be picked out and taught. It is half the battle to make the students keen and to get a spirit of *camaraderie* in the studios—a spirit of rivalry and keen competition, and of necessity many things go to the wall. Garden design and town-planning, for instance, are fascinating subjects dear to the student, but so neglected in the stress of modern life that they are fast becoming specialised subjects. This should not be; an architect should be capable of tackling everything, and an academic training lays the foundation of all his future work.

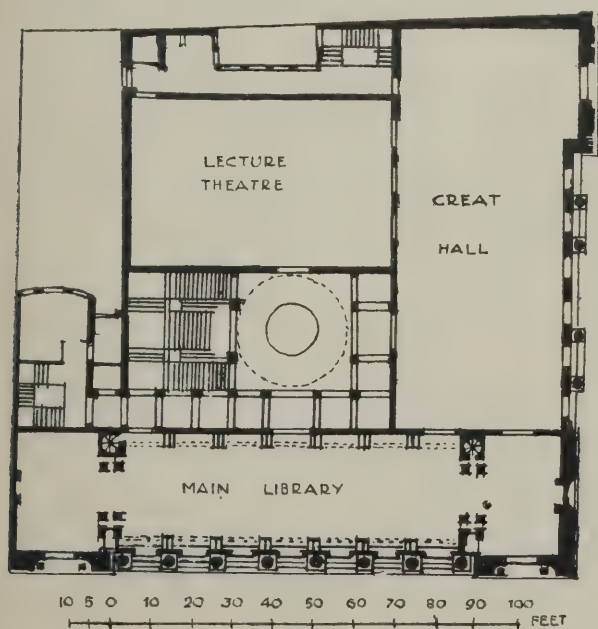
THE PLATES.

Shop Front, New Bond Street, London.

THIS does not come in the same category as those huge areas of unobstructed glass which constitute a problem so difficult of solution architecturally; on the other hand, it is far different from an old shop made up of small panes. The architects, Messrs. Lanchester and Rickards, are to be congratulated on the result, which is the best modern shop front of its kind that has yet been erected in London. The fenestration above the ground floor is distinctly original, and the figure of "Painting," by Mr. Poole, which forms a focus to the centre, is a fine piece of sculpture in Portland stone. The shop front is carried out in bronze, the detail being most admirably executed.

Institution of Civil Engineers' New Premises,

From 1838 until about two years ago the premises of the Institution of Civil Engineers were situated on the north side of Great George Street, Westminster. The site, however, being required for the extension of new Government offices, the then existing building (which was only erected in 1896) had to be demolished, and a larger site acquired for the reinstatement of the Institution's headquarters on the opposite side of the road.



INSTITUTION OF CIVIL ENGINEERS' BUILDING, WESTMINSTER:
FIRST-FLOOR PLAN.



NEW BUILDING, NOS. 144-146, NEW BOND STREET, LONDON.
LANCHESTER AND RICKARDS, F.F.R.I.B.A., ARCHITECTS.

The new premises, designed by Mr. James Miller, A.R.S.A., F.R.I.B.A., have just been completed. Occupying an area of some 21,000 sq. ft., the building has frontages both to Great George Street and Princes Street, the latter thoroughfare having been widened in accordance with the Westminster improvement scheme. The ground floor contains council and committee rooms, reading rooms, and general offices. The accommodation provided on the first floor is shown by the rough sketch plan on this page. The architect's finished plans are not, unfortunately, available for publication at the moment, and the plan which we give, based on the competition design, does not exactly represent the building as carried out. The disposition of the main rooms, however, remains unaltered. The lecture theatre, the main library, and the great hall are very spacious apartments, the last-named, where all the great functions will take place, being particularly fine in scale, and decorated in a most ornate manner. All these apartments are arranged and connected together for the convenient reception of a large number of people. Further library accommodation is provided on the second floor, where also is a writing and smoking room for members. Provision for the general service of the premises, including the heating and ventilating apparatus, extra cloak-rooms, etc., and for the storage, is made in the basement and on the third floor.

A House on the Cotswolds.

The Cotswold Hills have a marked character of their own, and the buildings in the district bear the

same distinction, having been influenced in style by the materials available in the neighbourhood. The house which we illustrate was designed by Mr. Oswald P. Milne, F.R.I.B.A., and has been erected with a careful regard for local building traditions. The walls are of local stone of a delightful deep brown colour, and the roof is covered with stone tiles. The windows, as in the humbler types of Cotswold buildings, are of wood. The house and stables have been grouped so as to form a forecourt on the north side of the house. The ground falls away sharply on the south side, and fine views are obtained from the sitting-rooms, which face this way. The slope of the ground has been treated in terraces, and a most effective garden has been formed. The planning of the house was influenced by the requirement of a studio, and the levels of the ground were also a governing consideration.

Working Drawing of Dome to National Museum or Wales, Cardiff.

This is one of a magnificent series of working drawings which Messrs. Smith and Brewer have had prepared for the superstructure (second) contract for their great new building in Cathays Park, Cardiff. The set altogether comprises more than 140 sheets, which, we should say, are the most notable produced in this country. The drawings are made on the American system, every detail of construction and material being shown. By the kind permission of the architects we shall reproduce further examples from this set in subsequent issues. The dome, it should be explained, occupies a position over the entrance hall, on the main front of the building.

Neo-Grec Detail.

The work which Duc carried out at the Palais de Justice, Paris, is of extraordinary architectural merit; hence this series of illustrations of Neo-Grec detail should prove of great interest and value.

Sculpture Group, The Old Museum, Berlin.

The Old Museum, standing on the north-east side of the Lustgarten, facing the castle, is perhaps the most imposing building in Berlin. It was built in the reign of Frederick William III., from designs by Schinkel. Its portico, supported by eighteen huge Ionic columns, is reached by a wide flight of steps. The museum covers an area of 47,000 sq. ft., and is 276 ft. long by 170 ft. wide by 61 ft. high. The back and side walls of the portico are covered with frescoes, from designs by Schinkel, executed under the direction of Cornelius, and representing, in mythological and symbolical figures, the world's progress from shapeless and chaotic to organic and developed life. At the sides of the flight of steps are two fine equestrian bronze groups—one of "The Amazon," which we now illustrate, by Kiss, the other of "The Lion-slayer," by Albert Wolff, which we propose to illustrate in a subsequent issue.

CORRESPONDENCE.

The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.

Correspondents are asked to be brief, and to write on one side only of the paper.

Bandstand Designs.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—With reference to recent articles on the designs of bandstands, your readers may be interested in the accompanying illustration and particulars of a bandstand which was erected in Simla (Punjab, India) some six years ago, from the designs of Mr. James Ransome, F.R.I.B.A., late Consulting Architect to the Government of India, and now of 17, Pall Mall, W.



BANDSTAND, SIMLA, INDIA. JAMES RANSOME, F.R.I.B.A., ARCHITECT.

The building has sixteen sides, and is 36 ft. in diameter. The plinth is of rough local stone, with dressings of Kalka stone, and the roof is of thick rough slates in graduating courses. The posts and traceried arches are of wood. The boarded floor is 6 ft. above the ground, thus leaving a hollow space, and the openings in the plinth below are for acoustic purposes. The ceiling (or sounding board) is 13 ft. above the level of the floor, and is of match-boarding, and the projection of the eaves is 4 ft. The inverted arches above the floor are fitted with ornamental wrought-iron railings, and the effect is very pleasing. One cannot compare the cost of erecting a similar bandstand in this country to the one reproduced in this photographic view, as the materials would differ in price, and also in the labour charges, as the building was erected by native labour under the superintendence of the architect and an English builder.

It should be noticed that the consensus of criticism at the time of the erection of the bandstand was unanimously adverse. This was no doubt due to the fact that the design was something very different from that of any other bandstand seen in the country, but public opinion changes with the times, and as the beauty of buildings seems to grow on one, this building now more generally meets with favourable approval. Its acoustic properties certainly are very excellent, and, on the whole, the building looks quite a success, and, I think, could be copied with advantage in this country.

Unfortunately, a hideous fringe of nails has had to be added round the eaves to keep the monkeys from climbing on the roof and tearing off the slates and dropping them on innocent passers-by.

JOHN A. HALE.

The Work on Buckingham Palace.
To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—In your article, page 306, last issue, *re* the work on Buckingham Palace, you refer to the scaffold lashings as chains and bolts. May we be allowed to mention that the lashings exclusively in use on this important contract are "Scaffixer" scaffold ties, and that we have been favoured with a communication from the contractors wherein they say how useful they have found these lashings owing to the limited time allowed for the completion of the work, and that the quite unusual and extraordinary loads to which the scaffold is subject have been sustained in an eminently satisfactory manner by "Scaffixer" scaffold ties.

THE PATENT RAPID SCAFFOLD TIE CO., LTD.



MODERN SHOP FRONTS. I.—COLNAGHI AND OBACH'S, NEW BOND STREET, LONDON.

LANCHESTER AND RICKARDS, FF.R.I.B.A., ARCHITECTS.



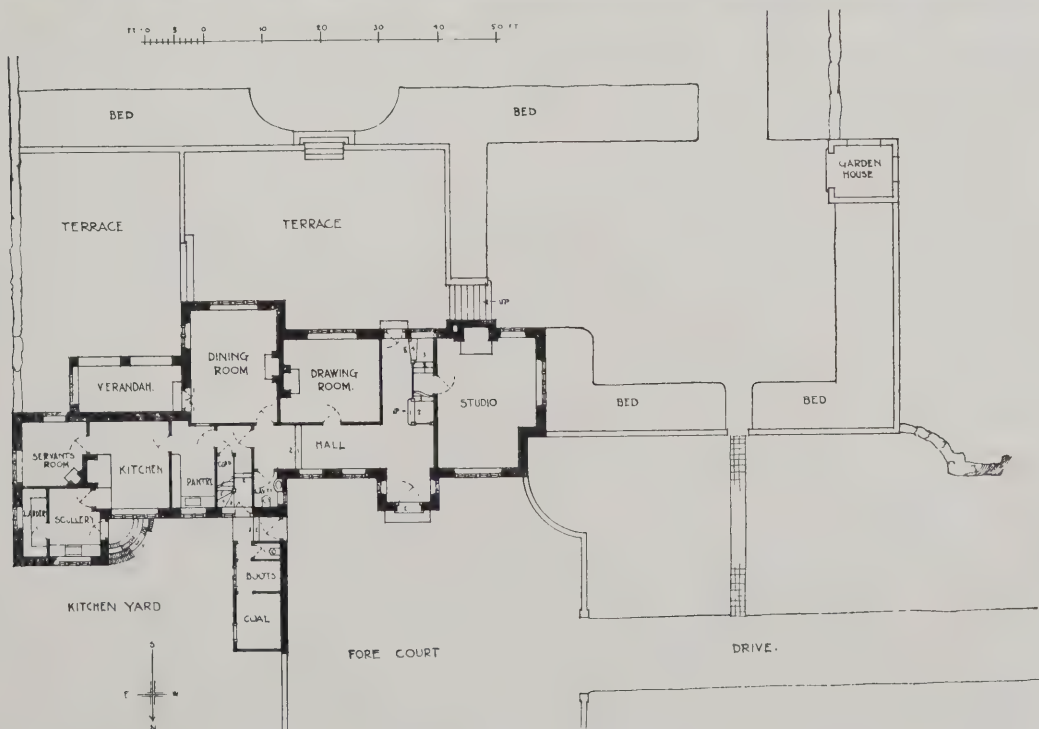
CURRENT ARCHITECTURE. I.—NEW BUILDING FOR INSTITUTION OF CIVIL ENGINEERS, GREAT GEORGE STREET, WESTMINSTER.

JAMES MILLER, A.R.S.A., F.R.I.B.A., ARCHITECT.



CURRENT ARCHITECTURE. II.—NEW BUILDING FOR INSTITUTION OF CIVIL ENGINEERS, WESTMINSTER: SIDE FAÇADE TO PRINCES STREET.

JAMES MILLER, A.R.S.A., F.R.I.B.A., ARCHITECT.



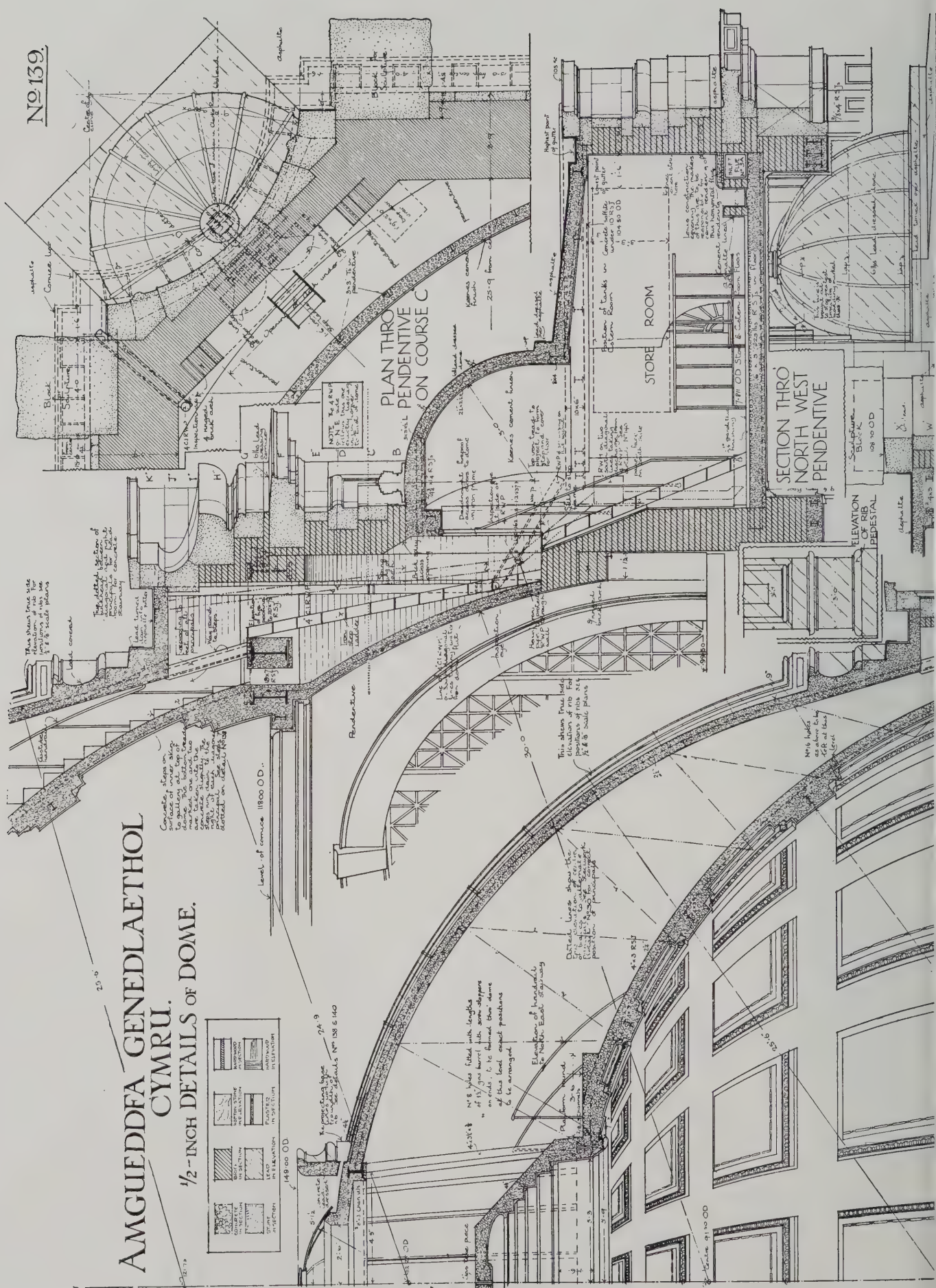
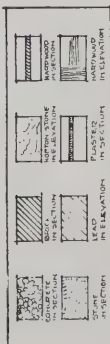
MODERN DOMESTIC ARCHITECTURE (NEW SERIES). I.—HOUSE ON THE COTSWOLDS.

OSWALD P. MILNE, F.R.I.B.A., ARCHITECT.



AMGUEDDFA GENEDLAETHOL
CYMRU.

1/2-INCH DETAILS OF DOME.



L. DUC, ARCHITECT.



MONUMENTAL ARCHITECTURE. I.—DETAIL OF FAÇADE OF THE OLD MUSEUM, BERLIN, WITH SCULPTURE GROUP.
KARL FRIEDRICH SCHINKEL, ARCHITECT

HERE AND THERE.

ONE makes the familiar remark with trepidation, yet how strange it is that we pass unnoticed, day after day, numerous things which, once our attention has been drawn to them, seem so prominent as almost to clamour for notice. Window glass offers a particularly good illustration of this. How few people, even among architects, realise the great changes which have taken place in the use of different kinds of glass for windows. But the examples are all around them. We need only to study a Georgian house, for instance, to see how the small panes sparkle in comparison with similar windows in houses of our own day. It is well to note the reason for this, which is, that the windows are filled with crown glass. The manufacture of such glass has long since been practically a dead industry, although I believe there is still one firm at least—Messrs. Chance, of Birmingham—who continue to make this most delightful of all window glass. Looking at these old windows, we notice at once that the panes are not flat, but slightly curved, and generally striated. Some of them are put in with the convex side outermost, and some with the concave side outermost, and as each pane is unlike its neighbour, the effect of the reflection of light on the varying surfaces is extremely pleasing. Instead of making a sort of dead-hole in the wall, divided up by the lines of the sash bars, these old windows form a sparkling feature in themselves. They add a touch of gaiety to the house front which no mathematically-exact flat surfaces can ever hope to give. It is appropriate to turn to the history of window-glass making in order that some points may be properly understood. There is nothing new in the facts, but they are of interest to those who are not familiar with them.

Crown glass, then, was the only window glass made in this country up to the end of the first quarter of the nineteenth century; it was, indeed, almost exclusively an English manufacture, very little being made on the Continent, and on this account it was generally known as English glass. Its manufacture was as follows: A workman took an iron pipe about 6 ft. long and gathered on the end of it a blob of molten glass. This he allowed to cool, and then added more to it, repeating the operation until eventually there was about 2 lb. to 3 lb. of glass on the end of the pipe. The semi-liquid mass was rolled gently on a slab and then blown out till it formed a hollow sphere. This was pressed on one side, making it like a flattened pumpkin, and then an iron rod was attached with glass to the centre of the flattened side, exactly opposite the pipe. The latter was next removed, leaving a hole about 2 in. in diameter. Then the dexterous part of the work commenced. It consisted in spinning the rod rapidly in the hands, with the flattened glass sphere towards the furnace. As a result, the hole began to open, and finally the centrifugal force of this whirling movement burst open the sphere, and the glass spun round in a thin sheet measuring 4 or 5 ft. in diameter. This stage being reached, the workman slightly reduced his speed of turning, and the sheet was gradually allowed to cool at the mouth of the kiln, and subsequently annealed. Rectangular panes were cut out of it for the best work, while the centre, where the "punty rod" was attached, formed the "bull's-eyes" that are so familiar in the windows of the old country cottage.

This was the method of window-glass manufacture in general use up to about 1830. Then came the great changes, due to altered requirements, chiefly commercial in character. The first of these changes consisted in blowing the glass in a thin layer within a cylinder, then cutting it through at one point, and allowing the glass to fall down on to a table. This gave what became known as sheet glass—the method of manufacture being commonly adopted throughout

the nineteenth century, and still followed at the present day, though modified in certain respects. It was found, however, that, whereas crown glass retained a high degree of lustre and brilliance, because its surface did not touch anything in the process of manufacture, sheet glass was comparatively dull of surface, by reason of the fact that when dropped on to its table it had of course to come into contact with the surface of the latter. Hence the next step in window-glass making—the polishing of one side of the glass by attrition, and thus the production of "patent" plate glass. The final stage—the casting of glass on to a table, rolling it into sheets, and polishing both sides—gave plate glass.

We may well bear in mind these different stages of manufacture when looking at windows old and new. The old process had its limitations, and other methods had necessarily to be introduced in order to meet greater needs, but there can be no doubt that, as regards appearance, the old crown glass is the most attractive of all, because of its changing lights due to variations of surface. What a pity that its delightful qualities cannot be transmuted into the window glass of to-day.

* * * *

Henceforth the craft of the architect holds no mystery; "a child can use it," as the saying goes, for what other result can follow the publication of this penny booklet that has caught my eye on the railway bookstall? One of those old writers who exploited his fancies in sixteenth-century English produced a quaintly satirical book which, if I mistake not, had for its title, "A Groat's Worth of Wit Bought with a Million of Repentance." That gave us information in generous handfuls, but it must be regarded as mere parsimony when compared with "Modern Homes and How to Build Them," price 1d. Let us turn, with feverish haste, to its contents. We find at once that it emanates from the Architectural Department of the House Hunters' Bureau, an organisation which has the temerity to direct operations from offices almost cheek by jowl with the Institute's own citadel in Conduit Street. Well, therefore, in face of such courageous enterprise, may architects tremble for their chances of success in capturing the clients that are so few among so many. The game is afoot, and the Architectural Emporium which we have so often joked about now sallies forth with alluring optimism to catch the public and, incidentally, engulf the erstwhile architect. For here is the organisation, ready and equipped, prepared to supply eighth-scale working drawings of all sorts of houses, consisting of plans, sections, and elevations—"one set hand-coloured"—with a detailed specification, for £4 4s. A bargain?—why, the hand-colouring alone is worth the money. Those estate plans and building sections overspread with printers' tints—how dull they are when put side by side with the assistant's handiwork in Payne's grey and crimson lake, animated, as they are, with the spirit of the text which I read the other night over a proscenium opening in a suburban theatre—"To awake the soul with tender strokes of Art." Moreover, besides all this hand-colouring, "our Architect is issuing fresh designs each month, and specimen reproductions will be sent on application," so that henceforth there is not the slightest excuse for a new house being even a month or two out of date. "The drawing's the thing," to paraphrase Hamlet. The rest is nothing, for those duties of superintendence which go to make up an architect's work must be regarded as mythical, and the clerk of works is no architect's policeman, but a wholly unnecessary adjunct. The world is full of honest builders.

UBIQUE.

THE CONDITIONS OF ENGINEERING AND BUILDING CONTRACTS.—I.

Being an Explanation of the Clauses of the General Conditions of Specifications and the Legal Decisions affecting them.

SPECIALLY CONTRIBUTED BY E. J. RIMMER, M.Eng., B.Sc., A.M.Inst.C.E., of Lincoln's Inn and the Northern Circuit, Barrister-at-Law, and KENNETH G. THOMAS, B.A., LL.B. (Cantab.).

Paranthetical numbers in the text refer to cases noted at the end of each section.

INTRODUCTION.

The steps leading up to the signing of the contract:

1. Advertisement for Tenders.
2. The Tender and documents incorporated with it. (a) The Specification, (b) The Drawings, (c) The Bill of Quantities, (d) The Schedule.
3. Preparing the Tender.
4. Consideration of Tenders.
5. Form of Contract: when necessary to be under seal.

1. Advertisement for Tenders.

To advertise for tenders is the first step affecting the contractor taken by a municipality or other building owner when the execution of work is contemplated or when the supply of material is required. It is a public intimation that the building owner is ready and willing to consider offers from contractors for the execution of such work or the supply of such material. In advertising, the building owner, in legal effect, makes an "invitation to treat" and incurs no liability whatever for the expense to which contractors may be put in preparing and submitting their tenders.

An advertisement of this kind may express as much or as little as the building owner wishes, but, in fairness to the contractors who may tender, it is proper that such advertisement should contain reasonably full particulars of the nature of the work, and that any unusual conditions attaching to the contract should be referred to therein. Otherwise a contractor may be led into the expense of paying a deposit and journeying to see plans and specifications for work of a nature that is outside the scope of his usual operations; or having tendered, he may find that, by the terms of the contract, conditions would be imposed upon him which he would on no account accept, in which case no other course would be open to him but to withdraw and bear his loss. The essentials of a good advertisement therefore are as follows:

- (1) A general description of the materials to be supplied or the work to be executed under the contract.
- (2) The place where and times when drawings may be seen and specifications, etc., either seen or acquired.
- (3) A statement that a deposit (varying from one to ten guineas, according to the magnitude of the work) must be paid by the contractor before he obtains access to the plans or acquires the specifications. In some cases this deposit is non-returnable, being merely a charge to cover the cost of printing the specification, etc. In other cases the deposit is demanded "as a guarantee of good faith" and is made returnable on the receipt by the building owner of a *bonâ-fide* tender. The advertisement therefore should say whether the deposit money is returnable or not.
- (4) A statement whether or not bills of quantities will be supplied, and, if so, that their accuracy is not guaranteed.
- (5) The place to which and the person to whom tenders must be sent and the time before which they must be received.
- (6) A statement that the building owner does not bind himself to accept the lowest or any tender.

[This appears to the authors a cautious

but really unnecessary statement, as no duty to accept any tender can be implied from advertisement, but it has grown so much to be a custom to insert it that the omission might give rise to speculative litigation.]

(7) Any other general information which the building owner may consider desirable or expedient according to the special circumstances of the case. For example, an advertisement may state that the building owner requires the wages of the workmen to be paid at a special rate, that time is of the essence of the contract, or that the contractor will be required to carry material under unfavourable conditions.

2. The Tender.

A tender by a contractor is an offer to enter into an agreement to supply material or execute work for a sum of money specified in the tender, or at a rate of payment quoted in the bill of quantities. Where the contract between the parties requires to be in no special form the unconditional acceptance of the offer by the building owner will bring about a binding agreement. This is so even in the case of an acceptance which refers to a formal contract to be drawn up afterwards, for it has been held that, if the intention of the parties was to enter into an agreement to perform the terms of the tender, and the preparation of the contract was designed only to give formal expression to the terms of the agreement, such acceptance would complete the contract (1). On the other hand, where a notice to the effect that the contractor whose tender should be accepted would be required to enter into a written contract appeared in the advertisement for tenders, and the contractor whose tender was accepted withdrew from the bargain before such written contract had been entered into, it was held that the acceptance of the tender did not form a binding contract (2).

In the case of municipalities the acceptance of a tender in connection with a contract which is required to be under seal (see *post*) does not constitute a binding contract unless the acceptance is itself under seal or unless the municipality passes the minute accepting the tender under seal.

A tender may be revoked at any time before acceptance, and in the case of transactions through the post it is worthy of note that an acceptance is deemed to be communicated to the person tendering as soon as the acceptance has been posted (3); but the revocation of an offer is not deemed to be communicated to the other party until it has been brought to his knowledge.

The tender which the contractor makes may be either unqualified, in which case it is assumed that he unreservedly accepts the conditions of contract which have been put before him, or it may be subject to certain conditions specified by him in addition to or in lieu of the contract conditions. In the latter case the building owner should carefully consider such conditions before accepting the tender, for if he accepts it without reference to such conditions it will be assumed that in accepting the tender he accepted also the conditions under which it was made. The form of the ten-

der may vary according to the class of work, but it is necessary, in order to make it a valid offer, to incorporate into it the conditions under which the work shall be done. This may, however, be accomplished by reference in the tender to other documents which the contractor has seen—*e.g.*, the specifications, bill of quantities, schedules and drawings. So for example, the words "in strict accordance with the specifications, schedules, and drawings" will incorporate into the tender the conditions contained in those documents.

In considering the tender it is first of all necessary to ascertain what documents may be incorporated with it.

(a) *The Specification.*—This is perhaps the most important document (which for convenience should be indexed) in a building or engineering contract, and contains most of the conditions under which the work is to be executed. It will usually be divided into two parts—(1) General conditions, (2) Special conditions.

The general conditions are those which apply chiefly to the business relationship that shall subsist between the building owner and the contractor. They define the rights and liabilities of the contractor and give to the engineer or architect powers under the contract.

The special conditions deal with the technical engineering conditions, details of construction, and special features of design, specifying the quality of material of different kinds for different purposes, and the manner of construction. (See Article IV., Quality of Work and Maintenance.)

(b) *The Drawings.*—Drawings or plans may be incorporated into a contract for the execution of work and become "Contract Drawings." Such drawings or plans will depict the work to be executed, and ought to show sufficient dimensions to enable the contractor to obtain from them the quantities of work, and sufficient detail to enable him to understand clearly the mode of construction. In many cases the drawings or plans will be of such bulk that it will be impossible to embody them with the contract documents. All such drawings or plans, and, indeed, all documents which are intended to form part of the contract and are not embodied with the contract documents, should be signed by both the parties to the contract.

(c) *The Bill of Quantities.*—A bill of quantities is, as far as possible, a correct list of the quantities of work and materials required to be done and provided in the construction of the work. It is an estimate (usually made by the engineer or architect for the building owner, or by a quantity surveyor) upon which the contractor may act, but of which the accuracy is not guaranteed by the building owner.

Opposite each item of work in the bill of quantities there will be two columns (1) for the tender price per unit of work, and (2) for the tender price for the full quantity specified. The total of all the prices in the second column, together with any additional charges which the contractor thinks fit to make, will be the total tender price.

For purposes of reference, especially in large contracts, it will be found conve-

nient to number consecutively the items in this document.

The bill of quantities may or may not form part of the contract, according to the nature of the contract, which may be one of four kinds:—

(1) A contract to supply a definite amount of material or to execute a definite amount of work to completion for a *lump sum* payment to be made either on the completion of the work or by instalments during the progress of the work.

This is a *lump sum* contract, and the bill of quantities forms no part of it and need not be provided, the plans and specifications sufficiently indicating the work to be done. A bill of quantities may, however, be provided in order to encourage tenders. It will, however, be an estimate only, and the contractor should carefully check each item.

(2) A contract to supply a definite amount of material or execute a definite amount of work to completion for a *lump sum* payment, but in which contract provision is also made for payment for additions to the contract work (or for deductions or omissions therefrom) based upon the *rate of payment* priced by the contractor in the bill of quantities.

This is a *lump sum contract with a rate of payment contract provided to meet any alterations by addition to or deductions or deviations from the original contract work*. The bill of quantities forms part of the contract as being applicable to alterations.

(3) A contract to execute to completion a work which is itself definite, but the amount of which is not definite, because, in order to find that amount, it is provided that final measurements shall be made upon completion of the work. The payment for the work is in this case to be arrived at by applying the *rates of payment* priced in the bill of quantities to the amount of work actually done as found by final measurements.

This is a *rate of payment contract*, and the bill of quantities forms a very important document in the contract. The total tender price in this case only serves as a proper figure by which to make comparison between the several tenders submitted, and the amount actually paid for the work will be greater or smaller according to whether more or less work is done than that estimated in the bill of quantities.

(4) A contract for the supply of materials may be in a form arranging for the supply of an indefinite amount of material of a particular kind, where each order by the building owner forms a new contract and each fulfilment of the order gives rise to a right on the part of the contractor to be paid for the goods as supplied (4).

(d) *The Schedule*.—In order to make provision for the amount of payment due to a contractor for any work that he may execute beyond the contract work, not analogous to that comprised in the bill of quantities, there is usually attached to the tender what is called a schedule of wages, which the contractor is required to fill up. Every different trade, kind of labour in the trade, and each kind of mechanical plant is set out, and the contractor fills in what rate of payment he will require to be paid per hour or per day for the employment of labour or plant for the purpose of such additional work. This schedule will eventually be incorporated into the contract between the contractor and building owner.

The usefulness of this schedule will be realised when it is remembered that at

the commencement of the work it is impossible to say with certainty that the bill of quantities covers all the kinds of work that may become necessary. Extra work of an entirely new character may be required, and upon the contractor supplying the number of hours spent and men engaged upon the work, in an account usually called the "*Day Work Account*," his payment will be calculated upon the basis of the prices in the schedule.

3. Preparing the Tender.

When the contractor has studied the documents which are supplied to him, or to which he obtains access he will be in a position to set about preparing his tender.

It is outside the scope of this work to explain the very complicated detailed work required to be done in preparing a tender, but in broad outline the contractor arrives at his total amount in the following manner:

From an examination of the plans (and possibly of the site of the work) he will estimate the length of time which the work will occupy and the extent of the permanent staff (engineers, clerks, etc.) which will be required to assist in the work. He will then be able to calculate his *establishment costs*—i.e., the cost to him of keeping and paying the staff and office expenses during the period of the execution of the work. His next consideration will be the cost of *unremunerative work*—e.g., temporary work, diversion of streams, water supply, etc. The wear and tear of plant (locomotives, cranes, etc.), with a reasonable interest on their capital value, will then have to be estimated, as also insurances and provision for onerous clauses in the contract.

All the foregoing expenses of the contractor are called *On Costs*. They are costs which the contractor will have to bear in order to do the work for which he is to be paid, and, if the work is to be paid for under a rate of payment contract he must, in order to recoup himself, distribute these on costs in a proper proportion over the different items of work for which he is tendering. If the contract is a lump sum contract he must add the total on costs to his lump sum tender.

The cost of productive work will then be calculated—a certain amount for material and a certain amount for labour, so that, adding together (i.) Proportion of on costs (including establishment charges), (ii.) cost of material, (iii.) cost of labour, the contractor arrives at a figure per unit of work to be constructed to quote in his tender.

4. The Consideration of Tenders.

From the foregoing it will be seen that it is of little or no importance to the building owner in a lump sum contract to consider how the contractor has arrived at the amount of his tender, but in a rate of payment contract a prudent owner will carefully scrutinise the tendered cost of each item of the bill of quantities to see the contractor has not quoted excessive prices for any part of the work to be done. The reason for this is clear. A contractor may put a high price upon the class of work which he thinks will result to be greater in quantity than that estimated by the bill of quantities, and a compensating low price upon work which he believes will result to be less. If the contractor's speculation is correct the building owner will then be obliged to pay exorbitantly for one class of work—the class which results to be more than was expected—and a small price for other work, the amount of which has been reduced. This will result in his paying a greater total price, although the

amount of work done is not proportionally greater.

An example of this may be found in a tender for excavation, where two different prices are quoted for rock and soft material. If the contractor thinks that in the bill of quantities the rock is under-estimated, he will tender a comparatively high price for the excavation in rock and low price for that in soft material, which will result, if the contractor's speculation is a good one, in the building owner paying a total amount for excavation much greater than that which he anticipated. Moreover, the prices quoted in the bill of quantities will govern the payment for additional and extra work ordered after the signing of the contract, so that each price quoted requires careful scrutiny. Similarly the schedule of prices requires careful attention. There is the same temptation to speculate on particular classes of labour as upon different items in the bill of quantities. In preparing a comparative summary of the tenders for the consideration of the building owner prior to the acceptance of one of them, it is therefore not only necessary to compare the total prices, but it is prudent to draw attention to any quotations in the bill of quantities or schedule which appear excessive or out of proportion.

It is usual to supply the building owner with a tabulated list of the contractors tendering and opposite each name to state (1) the amount of the total tender price, and (2) any observation in regard to special prices quoted or peculiar conditions under which the contractor offers to execute the work. This is sometimes called the "*Comparative Summary of Tenders*."

(To be continued.)

WOODEN WATER-PIPES.

Some wooden water-pipes having been recently dug up in one of the London streets, a considerable correspondence on the subject has arisen. It is generally agreed that such pipes are of no great antiquity, one correspondent stating that, to his knowledge some have been laid within living memory; and Mr. Edward J. Renaud recalls that there are three excellent examples of such pipes preserved in the Guildhall Museum. The too-attentive workmen have removed the rough outer bark to make them look tidy, but these pipes admirably show the "spigot and faucet" plan on which they were constructed; that is, these trunks of trees, cut into lengths of 5 ft. or 6 ft., are bored from end to end, the hole being from 6 in. to 7 in. in diameter—one end (the spigot) is cut taper outside like a lead pencil, while the opposite end has a trumpet-shaped enlargement of the bore to about 9 in. When being laid, the pointed end of one section was placed in the open mouth of the next one, well-tempered clay was used to cement the joint, and bands of iron secured outside it prevented the mouth splitting. Sir Hugh Myddleton's New River being completed, its water first flowed into the Pentonville Reservoir on September 29th, 1613, amid popular rejoicing; wooden pipes were used to distribute the water in various directions. At first oak was used, then sycamore; by 1810 we find elm employed, but between that year and 1820 iron pipes were slowly substituted. The trees were laid in their bark, that the tannin it contained might help to preserve the wood; at one time there were many miles of these wooden pipes. The New River Company's charter gave them rights to cut trenches across any estate to carry these pipes.

A CHAPTER IN THE EVOLUTION OF ARCHITECTURAL STYLE.*

BY RALPH ADAMS CRAM.

THERE is nothing accidental in our stylistic development, or in the universe, for that matter.

Chaos is the only word that one can justly apply to the quaint and inconsequent conceits in which we have indulged since that monumental moment in the early nineteenth century when, architecturally, all that had been since the beginning ceased, and that which had never been before on land or sea began. A walk up Fifth Avenue from Madison Square to the Park, with one's eyes open, is an experience of some surprises and equal illumination; and it leaves an indelible impression of that primal chaos that is certainly without form, if it is not wholly void. Here one may see in a scant two miles (scant, but how replete with experiences!) treasure-trove of all peoples and all generations: Roman temples and Parisian shops; Gothic of sorts (and out of sorts), from the "Carpenter-Gothic" of 1845, through Victorian of that ilk, to the most modern and competent recasting of ancient forms and restored ideals; Venetian palaces and Louis Seize palaces, and Roman palaces, and more palaces from wherever palaces were ever built; delicate little Georgian ghosts, shrinking in their unpremeditated contact with Babylonian skyscrapers that poise their towering masses of plausible masonry on an unconvincing sub-structure of plate-glass. And it is all contemporary—the oldest of it dates back not two generations, while it is all wildly and improbably different.

Continuous Development.

The experience prompts retrospection, and we turn over the dog-eared leaves of the immediate past. Apparently it was the same, only less so, back to the decade between 1820 and 1830, and there we find a reasonably firm foothold. Here at last, at the beginning of the century, we discover actual unanimity, and with some relief we go back century after century, tracing variations, but discovering no precedent for the chaos we have left. From time to time, even to the first Olympiad, we suddenly find ourselves at some brief period where a fight is manifestly going on; but there were never more than two parts to the contest, and this once passed we have another four or five centuries of peaceful and unified development. Our own Colonial merges without a shock in English Georgian; this, through Inigo Jones, in the Renaissance of the Continent. A generation of warfare lands us in Flamboyant Gothic, and so to real Gothic, that stretches back through logical vicissitudes to the twelfth century. Another upheaval, and in a moment we are with the Romanesque that touches Rome itself—and behind lies Hellas. No chaos here; definite and lawful development; infinite variety, infinite personality, and a vitality that demands a more illimitable word than "infinite." What happened, then, in 1825? What is happening now? What is going to happen? And why?

The Death of Architecture.

We all know what our own Colonial was like; perhaps we do not fully realise how varied it was as between one section and

another, but at least we appreciate its simplicity and directness, its honesty, its native refinement and delicacy, its frequent originality. It isn't the same as English Georgian; sometimes it is distinctly better, and, however humble or colloquial, it is marked always by extreme good taste. If anything, it improved during the almost two centuries of Colonial growth, and when the nineteenth century opened it was still instinct with life. A half-century later, where were we? Remember 1850, and all that date connotes of structural dishonesty, stylistic barbarism, and general ugliness! Here is the debatable period, and we may narrow it; for in 1810 and in 1820 good work was still being done; while in 1840, yes, in 1830, the sodden savagery diluted with shameless artifice was widely prevalent. To me, this decade between 1820 and 1830 is one of the great moments in architectural history, for then the last flicker of instinctive art amongst men died away and a new period came in. Such a thing had never happened before; it is true Rome never matched Greece in perfection of art; the Dark Ages after her fall were dark indeed; the second Dark Ages after the death of Charlemagne were equally black; while the transition from Gothic to Renaissance was not without elements of disappointment; but at none of these transitional moments were people absolutely wrong-headed, never was the work of their hands positively disgraceful. Even now we put their poor products in our art museums, where they are not outfaced by the splendid monuments of the great and crescent epochs. In a word, what happened about 1825 was anomalous; it happened for the first time; and for the first time whatever man tried to do in art was not only wrong, it was absolutely and unescapably bad.

Renaissance Struck a Wrong Note.

I should like to deal with this matter in detail, but the labour would prolong itself unduly. Briefly, what happened was, it seems to me, this. The Renaissance had struck a wrong note—and in several things besides architecture: for the first time man self-confidently set to work to invent and popularise a new and perfectly artificial style. I am not concerned here with the question whether it was a good style or not—the point is that it was done with malice aforethought; it was invented by a cabal of painters, goldsmiths, scenic artists, and literary men, and railroaded through a stunned society that, busied with other matters, took what was offered it, abandoned its old native ways, and later, when time for thought offered, found it was too late to go back. Outside Italy there was at first as little desire for the new-fangled mode as there was for the doctrinal Reformation outside Germany. In France and England good taste still reigned supreme, and though the dogmatic iconoclasts took care that the best of the old work should be destroyed, and that suspicion should be cast on what—from sheer exhaustion—they allowed to remain, though for one reason and another the new Classic style came in, the good taste of the people still remained operative, and while Italy and Germany were mired in Rococo and Baroque, they continued building lovely things that were good in spite of their artificial style, because their people had not yet lost their senses or their taste.

It could not last, however; certain essential elements had been lost out of life during the Renaissance and the Reformation; the Revolution—third act in the great melodrama—was a foregone conclusion; it completed the working out of the foreordained plot; and after it was over and the curtain had been rung down, whatever had been won, good taste had been lost, and remained only the memory of a thing that had been born with man's civilisation and had accompanied it until that time.

"Greco-Baptist."

Alberti and Palladio and Inigo Jones had dissolved and disappeared in the slim refinements of American Colonial. What followed? For a brief time, and in one or two categories of activity, the spacious and delusive imitations that Jefferson more or less popularised, the style sometimes known as neo-Grec, but more accurately termed—because of its wide use for Protestant meeting-houses in country districts—the Greco-Baptist style. It cannot be mistaken: front porticoes of well-designed, four-foot Classical columns made of seven-eighths-inch pine stock neatly nailed together, painted white, and echoing like a drum to the incautious kick of the heel; slab sides covered with clapboards, green blinds to the round-topped windows, and a little bit of a brick chimney sticking up at the stern where once, in happier days, stood the little cote that housed the Sanctus bell.

Carpenter-Gothic.

Then came what is well called "Carpenter-Gothic," marked by the same high indifference to structural integrity, and with even less reliance on precedent for its architectural forms; a perfectly awful farrago of libellous details—pointed arches, clustered columns, buttresses, parapets, pinnacles—and all of the ever-present pine lumber painted grey, and usually sanded as a final refinement of verisimilitude. And with these wonderful monuments, cheek by jowl, Italian villas, very white and much balconied; Swiss chalets, and every other imaginable thing that the immortal Beatty Langly, or, later, the admirable Mr. Downing, could invent, with, for evidence of sterling American ingenuity, the "jigsaw-and-batten" refinement of crime. We really could not be expected to stand all this, and when the Centennial finally revealed us as, architecturally speaking, the most savage of nations, we began to look about for means of amendment. We were not strikingly successful, as is evidenced by the so-called "Queen Anne" and "Eastlake" products of the morning after the celebration; but the Ruskinian leaven was working, and a group of men did attempt to produce something that at least had some vestiges of thought behind it. It is generally considered very awful indeed—and so it is, but it was the first sincere and enthusiastic work for generations, and demands a word of recognition. Its vivid ugliness is due to the fact that in the space of seventy-five years the last faintest flicker of sense of beauty had vanished from the American citizen; its intensity of purpose bears witness to the sincerity of the men who did it, and I for one would give them praise, not blame.

We are approaching—in our review—another era in the development of our architecture. Let us gather up the many

* Extracts from a paper based upon an address on "Style in American Architecture," delivered before the Contemporary Club of Philadelphia.

strands in preparation therefor. Here are the "wild and whirling words" of Hunt, Eidlitz, Furness; here is the grave old Gothic of Upjohn's following, Renwick, Congdon, Haight; admirable, much of it, especially in little country churches; here is the Ruskinian fold, Cummings, Sturgis, Cabot—rather Bostonian you will note; here is the old Classical tradition that had slipped very, very far from the standards of Thornton, Bulfinch, McComb, now flaring luridly in the appalling forms of Mullet's Government buildings and the Philadelphia City Hall. Let us pursue the subject no further; there are others, but let them be nameless; we have enough to indicate a condition of some complexity and a certain lack of conviction, or even racial unity.

America's First Great Genius.

Then the Event occurred, and its name was H. H. Richardson. The first great genius in American architecture, he rolled like an æsthetic juggernaut over the prostrate bodies of his peers and the public, and in ten years we *did* have substantial unity. We were like the village fisherman who didn't care what colour they painted the old tub, "so as they painted her red"; we didn't care what our architecture was, so long as it was Romanesque. For another ten years we had a love-feast of cavernous arches, quarry-faced ashlar, cyclopean voussoirs, and seaweed decoration; village schools, railway stations, cottages—all, all were of the sacrosanct style of certain rather barbarous peoples in the south of France at the close of the Dark Ages.

And in another ten years Richardson was dead, and his style, which had followed the course of Empire to the prairies and the alkali lands and the lands beyond the Sierras, and a few years ago I found some of it in Japan! It was splendid, and it was compelling, as its discoverer handled it; but it was alien, artificial, and impossible, equally with the bad things it displaced. But it *did* displace them, and Richardson will be remembered, not as the discoverer of a new style, but as the man who made architecture a living art once more.

New Classic and New Gothic.

Eighteen hundred and ninety, and we start again. Two tendencies are clear and explicit. A new and revived Classic, with McKim as its protagonist, and a new Gothic. The first splits up at once into three lines of development: pure Classic, Beaux-Arts, and Colonial—each vital, brilliant, and beautiful in varying degrees. The second was, and remains, more or less one, a taking over of the late Gothic of England and prolonging it into new fields, sometimes into new beauties. So matters run on for another ten years; at the end of that time the pure Classic has won new laurels for its clean and scholarly beauty, the Beaux-Arts following has abandoned most of its banality of French bad taste and has become better than the best contemporary work in France, while the neo-Colonial has developed into a living thing of exquisite charm. I feel too near the Gothic development to speak of it without prejudice, but its advance has been no less than that of its Classical rival—or should I say bedfellow?

Steel Frame Construction.

And now two new elements enter: steel-frame construction on the one hand, and on the other the Secessionist. The steel frame is the *enfant terrible* of architecture, but, like so many of the genus, it may grow up to be a serious-minded citizen

and a good father. It isn't that now; it is a menace not only to architecture, but to society; but it is young and it is having its fling. If we can make it realise that it is a new force, not a substitute, we shall do well. When it contents itself in its own sphere, and the municipality says kindly and firmly, "thus far and no further"—the "thus far" being about one hundred and twenty-five feet above street level, as in the very wise town of Boston—then it may be a good servant. Like all good servants it makes the worst possible master; and when it claims as its chiefest virtue that it enables us to reproduce the Baths of Caracalla, vaults and all, at half the price, or build a second Chartres Cathedral with no danger from thrusting arches, and with flying buttresses that may be content beautifully to exist, since they will have no other work to do, then it is time to call a halt.

The Secessionist.

The Secessionist—one might sometimes call him Post-Impressionist, Cubist even—is the latest element to be introduced and in some ways he is the most interesting. Unlike his confrères in Germany, Spain, and Scandinavia, he shows himself little except in minor domestic work—for at heart we are a conservative race, whatever individuals may be—but here he is stimulating. His habitat seems to be Chicago and the Pacific coast; his governing conviction a strongly developed enmity to archæological forms of any kind. Some of the little houses of the Middle West are striking, quite novel, and inordinately clever; some of the work on the Pacific coast, particularly around Pasadena, is exquisite, no less. Personally, I don't believe it is possible wholly to sever oneself from the past, its forms and expression; and it certainly would be undesirable. On the other hand, the astute archæology of some of our best modern work, whether Classic or Gothic, is stupefying and leads nowhere. Out of the interplay of these two tendencies much of value may arise.

Style Greater than Styles.

And there you are: three kinds of Classic, two kinds of Gothic, skeleton-frame, and Secessionist—all are operative to-day, each with its own strong following, each, one admits, consummately clever and improving every day; for there is no architectural retrogression in America, there is steady and startling advance, not only in facility for handling and developing styles, but in that far more important affair, recognition of the fact that styles matter far less than style. From a purely professional standpoint the most encouraging thing is the breadth of culture, the philosophical insight into the essence of things, and the liberality of judgment that mark so many of the architectural profession to-day. Gone are the old styles of the "Battle of the Styles"; the swords are beaten into pruning hooks, and these are being used very efficiently in clearing away the thicket of superstitions and prejudices that for so long choked the struggling flower of sound artistic development. The Goth and the Pagan can now meet safely in street or drawing-room without danger of acute disorder; even the structural engineer and the artist preserve the peace (in public): for all have found out that architecture is much bigger than its forms, that the fundamental laws are the same for all good styles, and that the things that count are structural integrity, good taste, restraint, vision, and significance. No one now would claim with the clangour of trumpets that the day of victory was about to dawn for the Beaux-Arts,

Gothic, or steel-frame styles, or for any other for that matter; each is contributing something to the mysterious alembic we are brewing; and all we hope is that out of it may come the philosopher's stone that, touching inert matter, shall turn it into refined gold—which, by the way, is the proper function of architecture and of all the arts.

PROGRESS ON THE LONDON COUNTY HALL.

At the site of the new London County Hall the erection of the derricks is the immediate work in hand apart from operations in the basement. The derricks run up from the ground floor to a height of 90 ft., and they will be able to carry up material not only for the superstructure, but also for the laying of the roof. Of the "Scotch" derricks three have been already erected, and work is in hand for the rearing of five or six more, including one which is being specially constructed and which will carry a jib of 135 ft.—one of the largest ever known to have been built. Besides these there is an American tower crane with two arms, which swing round with separate movements in a complete circle. All the derricks are operated by electricity generated from the base.

The foundation-stone of the structure was laid by the King on March 9th, 1912. The Council were advised that not fewer than seven years would elapse before the whole of the staff could be housed in the new building. The original estimated cost amounted to £1,706,000, but by the elimination of expenditure on the adjoining site occupied by Messrs. Holloway Brothers, builders and contractors, whose premises at the northern end of the new County Hall were acquired by the County Council for further possible extensions, the cost was reduced to an approximate sum of £1,412,000. Messrs. F. and H. Higgs were the contractors for the raft foundations and retaining walls; the sub-structure to the ground floor has been carried out by Mr. Charles Wall; the contractors for the superstructure are Messrs. Holland and Hannan and Cubitts, Ltd.; and for the river wall Messrs. Price and Reeves.

A HOUSING SCHEME FOR NAPLES.

The question of adequately meeting the demand for cheap housing accommodation becomes increasingly acute every year at Naples. An association for providing cheap dwellings for the people was founded at Naples in October, 1910, under the law of February 27, 1908, governing the erection of State or municipally aided popular dwellings in Italy. In the case of the city of Naples the civic authorities endowed the association with a free grant of £20,000. This money was borrowed from the Bank of Naples, which is doing the financial part of the association's work gratuitously, whilst allowing 2 per cent. interest on such amounts as the association may have on deposit. For the £20,000 the municipality pays 3½ per cent. interest. In addition to this free grant the civic body granted the association an annual revenue of £12,000 for fifty years. With this revenue as security the association was able to borrow £266,000 from the Savings Bank Department of the Bank of Naples.

The land on which the buildings are being constructed was given to the civic authorities gratuitously by the Bank of Italy on condition (1) that the city caused

LEGAL.

The Chimney Collapse at Workington.

After an inquiry lasting three hours the coroner's jury at Workington returned a verdict of "Accidental death" in the case of the five men who were killed by the fall of a steel chimney at the Workington Iron and Steel Company's Moss Bay Works on Tuesday, September 16th.

Mr. John Beattie, designing engineer to the company, stated that the chimney was built twenty years ago. The foundations were of concrete, and brick and timber was also found, the latter being in the condition of charcoal. Excavations for soaking pits had taken place 18 ft. from the outside of the chimney.

Mr. William Blair Hughes, consulting engineer, expressed the opinion that the charring of the timber between the two layers of concrete in the foundations was the real reason of the collapse. The timber, which consisted of four rows of pitch pine, said Mr. Hughes, must have been in the process of slow combustion, leaving a cavity underneath the concrete. Thus deprived of any support, the concrete would give way and the stack would fall. Mr. Hughes, in answer to questions, said he did not approve of the insertion of timber in chimney foundations. He thought it must have been put in with the notion of distributing the weight. He knew of no other chimneys at the works which were built on foundations like those of the overthrown chimney. The company had engaged experts to examine their stacks and test them.

Mr. Hughes was recalled later, and questioned by Mr. Cole, solicitor to the Steel Smelters' Association, as to how the timber could have become charred. He said he could not see how the heat of billets from the heating furnaces when dumped on the ground near the base of the chimney could have been transmitted to the timber in the foundations, because the surface of the ground was covered with sand and gravel, and these were non-conductors. He scouted the theories that the collapse might have been due to water in the ground, to the vibration of the rolling plant, to excavations for new soaking pits, or to an explosion of gas in the flues. Even if such an explosion had occurred it would have followed the line of least resistance and gone up the chimney shaft.

The Coroner said the evidence showed that these theories were fallacious. It was clear that the accident was brought about by the charring of the timber. It was satisfactory to know that no other chimneys at the works were built on this principle.

Notice to District Surveyor.

At the London Guildhall, before Alderman Sir John Bell, Mr. James Easton, builder, of Worcester Works, Charles Street, Barnsbury, was summoned at the instance of Mr. John Todd, one of the district surveyors for the City, for having begun to execute certain building works at 168, Bishopsgate, without first serving him with a notice under Sec. 145 of the London Building Act, 1894. Mr. Todd said the work in question consisted of the construction of a fire-resisting enclosure to a staircase at a cinematograph hall. The staircase was to provide means of escape to the street in case of fire. It was certainly only a small work, but it was most important that the interests of the public should be watched. The London County Council had power to make arrangements with regard to staircases for

cinematograph shows, and unless witness had notice of any alteration or addition he was unable to satisfy himself that the work was being correctly executed. Mr. Todd had power to request the defendant to pull the work to pieces to enable him to examine it, but he did not wish to penalise the owners to that extent.

Defendant said he was unaware that notice had to be given.

Sir John Bell imposed a fine of 40s. and 3s. costs.

BOOK NOTICES.

Manufacture, Testing, and Use of Portland Cement.

Mr. D. B. Butler's book on Portland cement having reached a third edition, revised and enlarged, the present writer's opinion, expressed when the manual was first published, in 1899, that it was destined to take rank as a standard authority, has been amply confirmed. Thoroughly revised, and in parts rewritten, the present edition contains also much additional matter, which has been rendered necessary by the remarkable developments of the industry which have taken place within the past few years. Chief among these has been the introduction of the thick slurry method of treating limestones and shales, which has been rendered practicable by the introduction of the rotary kiln, which now represents the standard method of burning. Then the standardisation of testing methods, ensuing upon the issue, in 1904, of the British Standard Specification, which is now generally adopted in England and the Colonies, demanded attention; and the author has also usefully included a complete copy of the standard specification recently issued by the United States Government. Reinforced concrete—we must enter a passing protest against the author's designation of it as "the combination of steel and concrete generally known as ferro-concrete," as we hold that reinforced concrete is the more suitable term—is dealt with in so far as it relates to Portland cement; and there is an illustrated description of the cement gun, an apparatus with which readers of this journal have been made familiar.

The three chief sections of the book deal respectively with the manufacture, testing, and use of Portland cement, and in half a dozen appendices are given useful memoranda for the testing room, tables of analyses (by the author) of various raw materials from which Portland cement is made in England and abroad, and the standard specifications of Britain, Germany, France, and the United States. The six chapters on manufacture are interesting historically as well as practically; and, in the nine chapters on testing, the author, who is successor to the late Henry Faija, the eminent testing expert, is in his own peculiar element. Altogether, the book may be regarded as indispensable to all cement-users.

"Portland Cement: Its Manufacture, Testing, and Use." By D. B. Butler, A.M.Inst.C.E., F.C.S., etc. Third edition, revised and enlarged. 135 illustrations, including 17 plates. Pages xii. + 458, 5½ ins. by 8¾ ins., price 16s. London: E. & F. N. Spon, Ltd., 57, Haymarket.

A Civil Engineer's Pocket-Book.

A pocket-book that weighs nearly 2½ lb. (avoirdupois), contains 1,612 pages, and costs 21s. net, would require a pocket of somewhat heroic strength and dimensions. It is not fair, however, to insist on a literal interpretation of a term that has acquired a well-known meaning. Essentially, the matter contained is of pocket-book cha-

racter, and that fact sufficiently justifies the title, although, considering the comprehensiveness of the collection of data relating to civil engineering, the term cyclopædia would almost be more appropriate. Fourteen of the seventy-one sections into which the items are classified relate to the mathematical aspects of the profession, and include a very large number of useful tables, as well as a clear statement of the principles involved in the practical applications of the exact sciences to the purposes of the engineer. There are also sections on stresses in structures, the natural history of materials, preservatives (paints, varnishes, lacquers, galvanising, and burning, creosoting, etc.), timber, building stones and cements, quarrying, stonecutting, masonry, roofs, buildings, foundations, breakwaters, surveying and levelling, electric power and lighting, hydraulics and hydrostatics—and this is to mention only a few of the headings under which are grouped innumerable useful data. The book is a marvel of industry and compactness, and while it was primarily designed to meet American conditions, it is so comprehensive that civil engineers of any country will find it a veritable storehouse of practical information. Many illustrations, a glossary, and an index that extends to more than seventy pages of small but clear type, complete a reference book of unquestionable utility.

"Civil Engineers' Pocket-book: A Reference-book for Engineers, Contractors, and Students." Containing Rules, Data, Methods, Formulas, and Tables. By Albert I. Frye, S.B., Member American Society of Civil Engineers. Pages xlii. + 1611, 4½ ins. by 7¾ ins., price 21s. net. London: Constable & Co., Ltd., 10, Orange Street, Leicester Square, W.C.

SCOTTISH BUILDING TRADES FEDERATION.

The nineteenth annual general meeting of the Scottish Building Trades Federation was held in Edinburgh on September 19th. Prior to the business proceedings the delegates lunched in Ferguson and Forrester's—Mr. W. Forrest, J.P., president of the Edinburgh Association, presiding. The meeting took place at 123, George Street, presided over by Mr. James Gray, jun., Inverness, president of the Federation. A report on the state of trade showed a general improvement throughout the country. A rise in wages had taken place in almost every branch of the trade, due in a great measure to the abnormal emigration which had taken place and to the increased cost of living. It was reported that the claim by the Scottish contractors for repayment of insurance contributions under the triennial contracts with the Office of Works had not yet been finally considered. It is understood that a decision will depend on the result of an arbitration which is pending in a similar contract affecting London contractors. A correspondence with the Office of Works re Government contract conditions was submitted to the meeting. Certain concessions had been granted in connection with percentages allowed upon prime cost values, and in place of the triennial schedules it is proposed to substitute a schedule specially adapted for the valuation of those variations on a new works contract, which cannot be valued on the basis of the bills of quantities. At the request of the contractor also separate copies of the account will be supplied in respect of each trade. A proposal to revise existing contract conditions and to adopt a universal mode of measurement, applicable to Scotland, was considered, and a committee was appointed to deal therewith and to report to a future meeting. The financial report was submitted by the treasurer and adopted.

A MODERN ELECTRICALLY-DRIVEN SAWMILL.

To-day no one questions the increased economy and efficiency to be obtained by the application of electrical power, which, however, has not made such strides in the wood-working industry as in other directions. This is principally because, generally, the proprietor has had too limited an idea of the benefits to be derived from electric driving. He has looked only for a decreased power bill, and has been quite unaware that an electrical power equipment would enable him to improve and quicken his processes, increase his output, and reduce his labour-bill. In an industry which provides by its waste products nearly all the fuel which is required for its power supply, the cost of power production is such a small percentage of the total works cost as to be almost negligible. But improved processes, increased output, and a reduced labour bill are much more important matters, and will justify an expenditure for electrification that a small saving in the power bill would not warrant. Moreover, the waste products of wood-working factories and yards have latterly become the raw material of other industries, with the result that they may be sold at a price considerably in excess of their value as fuel. Thus, soft-wood shavings are purchased by bedding manufacturers, hard-wood shavings are used for insulation of cold-storage chambers, for packing breakables, and for lining cars. When waste wood is available in large quantities, a contract can generally be fixed up with makers of alcohol, acetic acid, and cattle foods, for its disposal. All these methods of disposing of the wood waste at a more remunerative rate than by burning it for

fuel have disposed owners of wood-working factories to consider other sources of energy, and where there is a public electrical supply available, very advantageous terms can usually be arranged.

But the more important economies mentioned above make it more advisable to use electrical than mechanical power, even when no public energy is at hand. In such cases the steam boiler and engine may still be retained (and, if necessary, the wood waste still be used as fuel), but instead of mechanically distributing the power through shafting and belts, the engine should be used to drive a dynamo, and the electric current used to drive motors attached to individual machines or groups of machines.

Electrical transmission of power is so much more efficient than mechanical transmission that the saving in power from this source alone will be considerable, to which must be added the saving of the cost of all the shafting and other gearing, and the increased convenience of its absence. In new factories the basement (which is generally utilised for the shafts, belts, and pulleys) will not be required for this purpose.

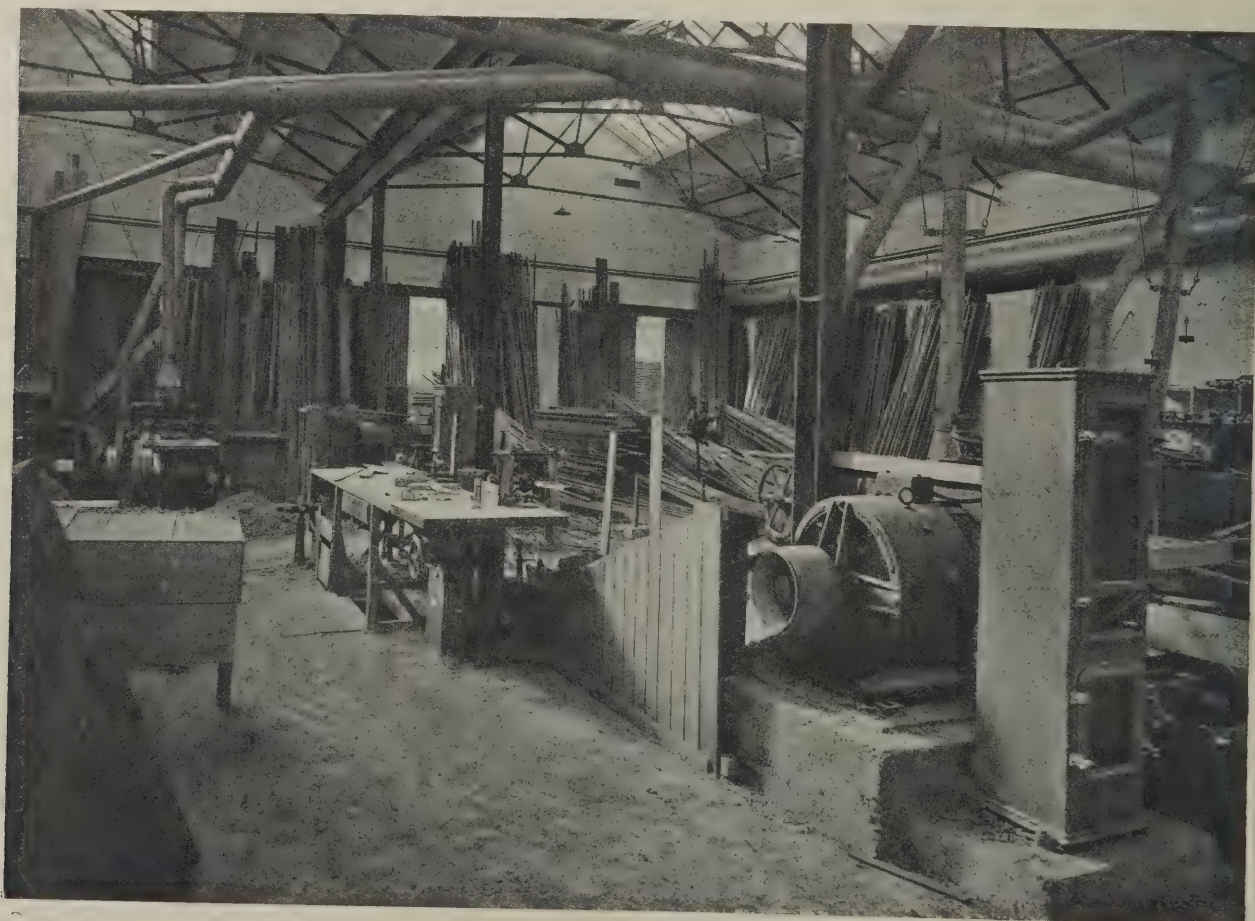
The really important economies, however, result principally from more accurate control, which renders more easy and speeds up all the processes, and also from the ability to place each machine in the position where it will be most useful, instead of having to place it where it can be attached to the shafting which is to drive it. This enables machines to be placed conveniently in relation to each other, so that the work passes easily and quickly and without unnecessary labour from each machine to the next in the line of processes.

To secure all these advantages, however, it is essential that the control gear

should be suitable for the work to be done, otherwise the advantages of electric driving will be lost. No matter how good the machinery is, or how suitable the motor is, or how skilled and careful the attendants, all sorts of trouble are inevitable if the control is not perfect. These make the work difficult, cause inconvenient stoppages, reduce the output, shorten the life of the machinery, waste the current, and in other ways reduce the manufacturers' profit. In consequence of the use of unsuitable control gear, several instances are on record where electricity having been adopted has been condemned, and would have been discarded but for the timely discovery that nothing but unsuitable control gear was the cause of the trouble.

Woodworking machines are very diverse in their characteristics, and require individual consideration in order to secure the best results. In nearly all cases the load is a very fluctuating one, due to knots, uneven sawing, nipping of the timber, etc., and there is always the liability of sudden overloads due to these causes.

Gradual starting of the tools is a necessity, owing to their very high working speed and heavy starting load, as in four-cutter planing and moulding machines, and it is equally necessary to be able to stop at once in cases of emergency, which may arise at any time, often even before the machine has been fully accelerated. These conditions demand that the switch-gear should be simple to manipulate, or it will absorb attention on the part of the workman, which should be given to his work. The operation of starting should be so easy that the workman need not take his eyes from his work to look at the controller. It should require no more skill than is needed to turn a handle or



SAWMILL WITH ELECTRICALLY-DRIVEN PLANT.

press a button. Then, again, stopping should be equally easy.

The motor must be automatically protected by the controlling device against damage arising from failure of voltage or from overloads, and the switch gear must be capable of frequently opening circuit on the occurrence of dangerous overloads without itself sustaining damage.

It is also advisable to enclose completely the switchgear in one substantial housing, as, in spite of the elaborate system of suction pipes, the atmosphere is more or less charged with dust, which tends to percolate everywhere.

A conspicuous example of what may be achieved by a well-planned installation, embodying the most suitable form of control, is afforded by Messrs. Lathams' Lea Valley Mills. The whole lay-out was arranged by the engineers of the Hackney Borough Council's Electricity Installation and Sales Department. The total horsepower at present installed is 280, and the voltage 240 and 480 d.c. The largest unit is 50 h.p. and the smallest unit is 2 h.p. All the motors are shunt-wound, fitted with interpoles, and of the enclosed ventilated type, by Messrs. J. H. Holmes and Co., of Newcastle-on-Tyne. One 50-h.p. motor drives a line of shafting, which drives four 36-in. circular saw benches. The second 50-h.p. motor drives two log frames of the vertical reciprocating type, by Messrs. Robinson, of Rochdale, each machine being capable of making any number of vertical cuts up to twenty-four simultaneously from logs up to 30 in. square and 12 ft. long.

One 15-h.p. motor drives a log frame saw of the horizontal reciprocating type, by Messrs. J. Pickles and Son, of Hebden Bridge, which is capable of making one cut up to 48 in., cutting at the rate of 2 in. per minute. Four 30-h.p. motors each drive a length of shafting, from which various moulding and planing machines, vertical spindles, circular saws, and band saws are driven.

Other smaller machines are fixed for working saw-sharpening tools, etc.

The control panels at Messrs. Lathams' Mills are all made by the Adams Manufacturing Co., Ltd., of London and Bedford, and are of the Adams Igranite Conspepe type. Each panel is enclosed in an iron housing of pillar form, and special precautions are taken in enclosing the control gear so as effectually to exclude the dust.

In individual driving it is even more essential than in group driving to provide means for rendering sudden overloads harmless, because in individual driving the motor has only power sufficient for the one machine that it drives, and no assistance is available from flywheels of countershaft pulleys, while the amount of kinetic energy stored in the moving parts of the machine and the motor is practically negligible. If a saw, for instance, sticks, as it is always liable to do, the electric motor, in order to cope with the increased load, demands an abnormal amount of power from the mains. When this demand reaches a value likely to be injurious to the motor, the machine should be automatically stopped, and the overload removed. Automatic stopping under an overload is very trying to the control gear, and this is a point at which unsuitable controllers invariably fail and give trouble. The only satisfactory method of breaking a large overload current is to remove the actual break from the contacts of the starters altogether, and allow it to take place on a specially designed circuit breaker, which should be fitted with

very powerful magnetic blowout and carbon circuit-breaking contacts.

This method of breaking circuit is of special importance in a wood-working shop, where the blowing of a fuse may lead to a fire. Fuses may be entirely dispensed with, and fire risk thereby very considerably reduced. Moreover, fuses require continual attention if adequate protection is to be obtained on variable load, and the constant necessity of renewing fuses becomes such an intolerable nuisance that the temptation always arises to strengthen them up to such a degree that they cease to afford any protection. We are informed by the engineer of the Hackney Borough Council that since this plant was installed over six months ago they have not replaced a single fuse. In the "Conspepe" controllers the circuit-breakers are made to be self-resetting. They have no handle, the whole operation being entirely automatic, and no further attention is required to re-start the motor after being stopped by an overload than simply to reduce the load to safe dimensions, and start again in the ordinary way.

Should any unforeseen adverse circumstances develop during starting, it should be possible to stop the motor by simply releasing or bringing back the starting handle. In other words, in stopping a tool, the instinctive action of the operator should be the correct one. With ordinary starters this is impossible without serious sparking and burning of the contacts. The "Conspepe" panels are arranged so that a backward movement of the starter handle immediately stops the motor, by opening the circuit breaker, thereby making the contacts dead, and protecting them against sparking and burning.

The panels have the great advantage of having only one handle, so that there is no possibility of the various operations being performed in improper sequence, as might occur if there were two or more handles, and the attendant were to operate them in incorrect order.

The circuit-breaker and starter are so interlocked that the first movement of the starter handle in the direction for starting causes the circuit-breaker to close automatically, and should an overload occur, either through too rapid starting or from any other cause, it will reopen, and no effort on the part of the operator will avail to keep it closed until the load is lightened. Furthermore, having opened, the circuit-breaker will not close again until all the starting resistance has been re-inserted.

The circuit-breaker is so interlocked with the starter that the slightest backward movement of the handle, either from the first or last, or any intermediate contact, causes the circuit-breaker to immediately open, and so confines the duty of opening circuit always to the circuit-breaker, thus preventing the starting contacts being burned or damaged. This is a most valuable feature, particularly in connection with wood-working machinery, and it is claimed that the success or failure of the whole of the plant depends entirely on the correct controller being installed.

Each panel is provided with a stopping button at the side of the housing. These buttons are arranged to open the circuit-breaker, not to short-circuit the no-volt spools. This feature makes the panels equally suitable for stopping the machines as for starting them, as the main circuit is never broken on the starter contacts. Any number of these buttons may be fitted round the various machines, thus placing them entirely under the control

of the workmen, so that the machine can be stopped immediately on emergency from any position.

We are indebted to Messrs. Latham and Co. for the facilities they afforded us in obtaining the photograph and the particulars of the wood-working machines.

COMPETITIONS.

Sanatorium, Fazakerley.

The erection of a new tuberculosis sanatorium at Fazakerley has been undertaken by the Port Sanitary and Hospital Committee in connection with the work now devolving upon them under the Insurance Act. The committee recently decided to call for competitive designs, and appointed a special sub-committee, with Dr. Utting as chairman, to deal with the designs sent in, Mr. Henry Hartley acting as expert assessor. No fewer than thirty sets of plans have been received, and these were given a preliminary consideration by the special sub-committee, who met at St. George's Hall, Liverpool, on September 19th.

Discussion over an Assessor's Fee.

At last week's meeting of the Sunderland Education Committee, the Works Committee reported that the assessor nominated by the President of the Royal Institute of British Architects to assist the committee in adjudicating upon the designs submitted in connection with the Training College competition had declined to undertake the work at the fee fixed by the Council, and the president had expressed the opinion that the fee should be in accordance with the scale contained in the regulations of the Institute. The committee recommended that they be authorised to arrange the matter upon the best possible terms. Alderman Bruce, in moving the adoption of the report, said that in the first instance the committee offered twenty-five guineas, but the Institute demanded thirty guineas and one-fifth per cent., and it appeared they could not get an assessor unless they were prepared to comply with the "trade union rate" of remuneration. Councillor G. S. Lawson said the Institute were really asking for £73 10s. for the work, and he considered the committee should set themselves as firmly as they could against paying so heavy a charge.—The report was accepted.

The Rome Scholarship in Sculpture.

The first Rome Scholarship in Sculpture has been awarded to Mr. Gilbert Ledward, on the recommendation of the Faculty of Sculpture of the British School at Rome, comprising Sir Thomas Brock, Sir George Frampton, Sir W. Goscombe John, Professor Lanteri, Mr. T. Stirling Lee, Mr. Bertram Mackennal, Mr. Havard Thomas, and Mr. Derwent Wood. The Scholarship is of the value of £200 per annum, tenable for three years. The competition for it was divided into two stages, preliminary and final. The former resulted in the selection of Messrs. Ledward, Jagger, Brownson, and Wilcoxson to compete in the final. In our issue for May 21st last we illustrated some of the work submitted, including a fine bas-relief of "The Mourners," by Mr. Ledward.

Mr. Ledward is the son of the late Richard Arthur Ledward, who studied under Dalou, and was a sculptor of great promise. He was born at Chelsea in 1888, and is therefore now in his twenty-fifth year. After receiving general education at St. Mark's College, Chelsea, he went to Karlsruhe, and on returning to England in 1902, studied art at the Chelsea Poly-

technic, whence he proceeded to the Goldsmiths' College, New Cross. Here, at the end of his second year, he gained a London County Council art scholarship, with which he entered the modelling school of the Royal College of Art under the direction of Professor Lanteri. In his second year he gained the Royal College of Art Scholarship, value £60 a year, tenable for three years, which enabled him to complete five years of study with Professor Lanteri. Mr. Ledward's course at the Royal College of Art was distinguished in 1910 by his gaining the British Institution Scholarship in sculpture, value £100. He then entered the Royal Academy Schools, where he was awarded the Armitage Prize for Sculpture. Concurrently with his studies at the Royal Academy he has been practising as a sculptor, and has also been engaged as modelling master at the Lambeth School of Art.

The painters were *en loge* simultaneously with the sculptors; the architects are now busy in their final contest. The competing works in each section will be publicly exhibited about the beginning of December.

COMPETITIONS OPEN.

OCTOBER 4.—WORKING CLASS DWELLINGS, BRADFORD.—The City of Bradford Council invite architects to submit designs for laying out an estate of 50 acres and for erecting small houses thereon for the working classes. Mr. Henry T. Hare, F.R.I.B.A., will act as assessor. Particulars may be obtained on application to Frederick Stevens, Town Clerk, Town Hall, Bradford. (Deposit, one guinea.)

OCTOBER 31.—TOWN PLANNING SCHEME, YORK.—Premiums of £100, £50, and £25 are offered for a town-planning scheme for certain areas in and near York. Particulars, F. W. Spurr, City Engineer, Guildhall, York.

NOVEMBER 1.—ROYAL PALACE AND LAW COURTS, SOFIA.—Particulars, Commercial Intelligence Branch, Board of Trade, Basinghall Street, E.C.

NOVEMBER 29.—BAND PAVILION, FOLKESTONE.—Folkestone Corporation invite designs for a band pavilion to be erected on the face of the West Cliff, at a cost, including approaches, not exceeding £20,000. Mr. Edwin T. Hall, F.R.I.B.A., will act as assessor. Intending competitors should forward deposit of £1 is. to A. F. Kidson, Town Clerk, Town Clerk's Office, Folkestone, when conditions will be sent.

JANUARY 2.—ROYAL EXCHANGE, MANCHESTER.—The Board of Directors of the Manchester Royal Exchange, Ltd., invite designs for additional new buildings and alterations on the existing Exchange buildings. Mr. James S. Gibson, F.R.I.B.A., will act as assessor. Particulars, instructions, and plans will be forwarded on application to Richd. J. Allen, Master, the Manchester Royal Exchange, Ltd., Manchester, accompanied by a cheque for £2 2s.

JANUARY 2.—GOVERNMENT BUILDINGS, OTTAWA, ONTARIO.—Architects are invited to submit sketch designs in a preliminary competition for the erection of departmental and courts buildings from the designs submitted. Six will be chosen by the assessors, the authors of which will be invited to take part in a final competition, for which the five unsuccessful competitors shall each receive an honorarium of (\$3,000.00). The competition is limited to British subjects practising in the British Empire. Mr. T. E. Colcutt, Mr. J. H. G. Russell, and Mr. J. O. Marchand will act

as assessors. Conditions for both competitions may be had on application to R. C. Desrochers, secretary, Department of Public Works, Ottawa, and at the office of the High Commissioner for Canada, 17, Victoria Street, London. (Summary of conditions, p. 326 in our issue of September 24th.)

FEBRUARY 15.—SAVINGS BANK, VERONA.—The Savings Bank of the City of Verona invite designs for a new building to be erected on an area bounded by the Piazza delle Erbe, Via Camera di Commercio, Via Portici, and Via Mazzini. Premiums: (1st) Lire 30,000 (about £1,200) and (2nd) Lire 15,000 (about £600). The President of the Savings Bank and four others, to be appointed by the Council of Administration, will act as assessors. Applications to be addressed to the seat of the Institution, Via Garibaldi No. 1. (Site plan and summary of conditions, p. 221 of our issue for August 27th.)

NO DATE.—NEW OFFICES FOR THE BOARD OF TRADE, ETC., LONDON.—The Commissioners of H.M. Works and Public Buildings invite preliminary sketch designs in competition for new offices for the Board of Trade, etc., to be erected on a site in Whitehall Gardens, London, S.W. From sketch designs submitted the authors of not more than ten designs will be selected to submit designs in a final competition at an honorarium of £300 each. The assessors are Mr. Reginald Blomfield, M.A. (Oxon.), A.R.A., P.R.I.B.A., Mr. John Belcher, R.A., and Sir Aston Webb, C.V.O., C.B., R.A. Conditions of the competition, which is open to all British subjects, with full particulars of the accommodation required and plan of site, can be obtained on application to the Secretary, H.M. Office of Works, etc., Storey's Gate, London, S.W., and deposit of £1 is. (Site plan and summary in our issue of September 3rd.)

NO DATE.—WORKMEN'S COTTAGES, SKELMANTHORPE.—Skelmanthorpe Urban District Council invite competitive designs for twelve workmen's cottages, to be built by the Council. Particulars, Clerk, Wilson, Fisher, Skelmanthorpe, near Huddersfield.

NO DATE.—CIGAR SHOP FRONT, LONDON.—Messrs. Martins, Ltd., of 25, Cheapside, E.C., offer a prize of £50 for a design for a shop front, to be erected in Piccadilly. The assessor is Mr. Henry Tanner, F.R.I.B.A., of 12, Regent Street, London, to whom inquiries should be addressed.

PROJECTED NEW WORKS.

Refuse Destroyer and Electric Lighting, Rothesay.

Rothesay Town Council have decided to erect combined refuse destroyer and electric lighting scheme to cost £13,000.

Housing, Greenock.

Greenock has decided to borrow £5,600 to cover cost of erecting first block of working-class dwellings at the east end of the town to hold forty-one families.

Extensions, Belfast Harbour.

The Glasgow Steel Roofing, Co., Ltd., have been selected as contractors by the Belfast Harbour Board to construct metal work skylight glazing, etc. in new sheds extensions at York dock for the sum of £2,250.

Municipal Buildings, Newport, Mon.

The Newport, Mon., borough architect (Mr. Ward) has submitted a report to the Watch Committee and the Works Com-

mittee showing various schemes. The one which he specially recommends is the building of a new town-hall, with law courts and police quarters, on a detached site on King's Hill, where there is something like nine or ten acres of land in picturesque setting. The estimated cost of the scheme there, with 60 ft. approach roads, is £164,000. Alternatively to the main recommendation at King's Hill there is a scheme for building law courts and police quarters on a site in Dock Street opposite the rear of the present town-hall and also the extension of the present town hall by the acquisition of adjacent properties on either side.

Public Baths, Balham.

It is recommended by the Baths Committee of the Wandsworth Borough Council that the Council should ask the Local Government Board to sanction a loan of £11,000 for the construction of public baths at Balham.

New Building for the Old General Post Office Site.

It is announced that on the site of the old General Post Office, St. Martin's-le-Grand, will be erected, from the designs by Sir Henry Tanner, architect to the General Post Office, a building to accommodate the Accountant-General and his staff.

Baths, Northwich.

The Local Government Board have intimated to the Northwich Urban Council their sanction to the loan of £11,732 for the erection of public baths. The new baths site, including the Council Office, cost £2,500.

Memorial, Hawick.

At Hawick, the 1514 Memorial is to take the form of an equestrian statue instead of a mercat cross, as previously decided on, the cost of the statue is to be about £1,200, £600 of which has up to the present been promised.

School, Selly Oak.

To meet the need for further school accommodation at Selly Oak and Bournbrook the Sites and Buildings Committee of the Birmingham Education Committee recommend a new school should be built on the site in Harborne Lane, on which a temporary school now stands. The extension of the site is estimated at £860, the new school at £15,000, and furniture £1,100.

Aerodrome on the Northumberland Coast.

H.M.S. Hermes, the parent ship for the Government aerial squadron, has arrived off Blyth in connection with the proposed Admiralty aerodrome in that locality. Tests will be made regarding the suitability of suggested sites for aeroplanes and waterplanes.

Housing, Glasgow.

The Glasgow City Engineer has prepared plans for cottages and tenements on ground at Kennyhill which has been acquired for the purpose of erecting dwellings for the poorest classes. The plans provide for eight three-storey tenements of two apartment dwellings, and seven two-storey blocks of three apartment cottages. The estimated cost of the tenements, including site, is £9,270; and the cost of the cottages, inclusive of site, is estimated at £6,540.

New Baths, Glasgow.

Tenders are to be immediately invited for the construction of baths for Govanhill and Langside Wards, Glasgow. Originally it was proposed to provide a modern suite of baths at a cost of about £29,000, but later the Corporation decided to include public wash-houses as well. A site

has been secured, adjoining the Govanhill Library in Calder Street. The buildings are to include two swimming ponds, forty-four hot baths, as well as Turkish baths.

Extensions, Sheffield University.

The Council of Sheffield University have confirmed the recommendation of the Building Committee to go forward with the proposed extension of the arts, pure science, and chemical departments. The total expenditure which may eventually be involved amounts to about £50,000, and the first part of the scheme will probably cost about £18,000. The University also needs a woman's hostel, but this work cannot be proceeded with until funds are forthcoming.

Concert Hall, Brighton.

A special committee appointed by the Brighton Town Council to consider the re-modelling of the Aquarium has decided to recommend the local authority to advertise for competitive designs for an attractive concert hall at the western end of the building, with seating accommodation for 2,500 persons. No recommendation is made as to the cost, but it will probably amount to £20,000.

Kensington Street Widening.

At the Kensington Borough Council meeting a scheme was submitted for widening Church Street, the only main public thoroughfare for general traffic going north and south between Park Lane and Addison Road. This would involve the setting back a part of the parish churchyard railings, and it was proposed to take the necessary steps for securing the faculty from the Consistory Court. Sir Aston Webb said that London was being spoilt in the matter of improvements for the want of foresight on the part of public men. It would be a great misfortune if the churchyard of St. Mary Abbots had to be sacrificed. As a result of the discussion, it was decided by 29 votes to 21 to refer the proposal back to committee for further consideration.

New Municipal Works.

The Local Government Board have decided to hold, or have already held, as the respective dates indicate, inquiries into proposed expenditure by public bodies as follows: Abingdon Rural District Council, £1,000, for Sunningwell (September 29); Chipping Wycombe Borough Council, £1,265; Abingdon Rural District Council, £2,800, for Sutton Courtney; Alnwick Rural District Council, £1,280, for Hauxley, Togstone, and Warkworth (September 30); Settle Rural District Council, £2,250, for Langcliffs (October 1); Tyne-mouth Borough Council, £13,000 (filtration apparatus) (October 2); Sewerage, Drainage, and Sewage Disposal.—Tyldesley-with-Shakerley Urban District Council, £14,200; Hawarden Rural District Council, £1,000, for special drainage district (October 2). Street Improvements.—Bridlington Borough Council, £4,600; Turton Urban District Council, £3,000 (September 30); Blackpool Borough Council, £7,476 (October 1); Runcorn Rural District Council, £2,520 for Stockton Heath (October 2); Middlesbrough Borough Council, £2,575; Chesterfield Borough Council, £1,050 (October 3).—Various.—Burnley Borough Council, electricity undertaking, £36,227 (September 30); Whickham Urban District Council, laying out cemetery, £5,300 (October 1); Buxton Urban District Council, improvement of hot mineral water baths, £4,600 (October 2); Middlesbrough Borough Council, erection of police station, £2,640 (October 3).

TRADE AND CRAFT.

Making Cement Waterproof.

A new booklet has been issued by Messrs. Kerner Greenwood and Co., King's Lynn, describing their patented powder Pudlo, which makes cement waterproof. The word Pudlo, it is stated, is coined from the verb to puddle, which, as defined in Chambers's dictionary, means "to make water-tight by means of clay." The use of clay puddle, however, is wasteful of space and labour, and is fortunately no longer necessary now that cement can be made waterproof.

Pudlo, as most of our readers are by this time aware, is a fine white powder, which, when mixed with neat cement in proportions varying with the service required, prevents all moisture from penetrating the material. Puddled cellars and basements, even when built alongside the water's edge, are thoroughly damp-resistant; and the powder is particularly useful in preventing dampness arising in concrete floors, and in enabling the construction of flat roofing in cement, the waterproofing material so thoroughly binding itself with the cement that no moisture can get through. It is being largely used in the construction of concrete buildings, reservoirs and swimming baths, motor garage pits, and stokeholes, river and canal locks, roughcast walls, and railway bridges, as well as in remedying weather-beaten or porous walls, defective dampcourses, faulty sewers, or conduits, flooded riverside basements, leaking tanks or manholes, etc.; and, besides preventing the unsightly efflorescence on cement-work, it makes an economical and perfectly sanitary pipe-joint. Tests by Messrs. Henry Faija and Co. and Messrs. David Kirkaldy and Son tend to show that Pudlo cannot weaken cement, but appears to strengthen it. Many convincing testimonials to the value of Pudlo in various classes of work are printed in the booklet, which may be obtained post-free from the above address.

Reduction of Electric Lamp Prices.

The General Electric Co., Ltd., 67, Queen Victoria-street, E.C., have issued the following circular:

"We beg to inform you that further technical progress in connection with drawn-wire filaments, combined with increased output of the Hammersmith Osram Works, have enabled us to effect further economies in the manufacture of Osram lamps. We are convinced that by giving the benefit of these reductions to the user, the additional economies in lamp renewals thereby effected will lead to increased business for us.

"We have therefore decided from the 22nd inst. to reduce our list prices to those mentioned in the enclosed catalogue, No. O.S. 1730, from which you will note the following reduced rates:

"100 to 135 volts—10 to 60 watts, from 2s. 6d. to 2s. 2d.; 200 to 260 volts—30 to 60 watts, from 3s. to 2s. 8d.; 200 to 260 volts—20 watts, from 3s. 3d. to 2s. 11d.; 15 watts, from 3s. 6d. to 3s. 3d.; 100 to 260 volts—100 watts, from 4s. 9d. to 4s. 3d.; 200 watts, from 9s. to 8s. 6d.; 300 and 400 watts, from 17s. to 16s. Certain other sizes in the 20 to 89 volt ranges have also been revised, see Catalogue No. O.S. 1730."

Concerning this announcement, which was made on September 20th, it is noteworthy that this is the second time within two years that the price of electric lamps has been reduced. Lamps which two years ago cost 4s. now only cost 2s. 6d.

These successive reductions in price have been brought about by the improvements in lamp-manufacturing methods which, it is claimed by the firm in question, followed on the introduction of the drawn wire process by the British Thomson-Houston Co., Ltd., of Rugby. When the drawn-wire process was first developed by the manufacturers of the Mazda lamps, it was generally anticipated that the only result would be a considerable accession of strength and durability to the lamps. In practice, however, it was soon apparent that the new method considerably simplified the intricate processes of manufacture and enabled the production not only of a better lamp, but also of a cheaper one. Since then progressive improvements in manufacturing methods, coupled with the increasing demand for the new type of lamp, have resulted in still further economies.

Electric Lifts.

Messrs. Smith, Major and Stevens, Ltd., of London and Northampton, have issued a fourth edition of their "Notes on Electric Lifts," which affords valuable guidance as to choice, cost, and management, the information given being based on the experience gained in the manufacture and observation of many thousands of lifts. Stress is laid on figures which show that the electric lift is relatively a most economical machine as regards power, a considerable number of machines costing, for efficient maintenance, less than £2 a year, the lowest cost being only 4s. A census of the lifts in use shows that one ran six years without repair, another five years, a third four years, four for three years, and eleven for two years, not one of these machines costing, during the periods named, a single penny for repairs. The firm have devoted many years of scientific study of the subject of safety gears, and this matter is fully discussed in the booklet. A section is also devoted to the "full automatic" system of control, and all details of construction of these and other lifts are instructively described with illustrations where necessary. Many illustrations are given of important buildings in which the firm's lifts have been installed, and a long list of purchasers includes his late Majesty King Edward VII., many Government Departments, and a large number of municipalities, shipping companies, banks, insurance companies, hotels, etc.

Waterproofing Water-supply Syphons.

We are informed that an interesting report on the use of "Ceresit" comes from Bangkok, where the Chief Civil Engineer to the Department of Ways of Communication has expressed himself as highly satisfied with its use on the syphons carrying the new water supply under the navigation canals. Since the use of this material leakage which previously gave considerable trouble has now been entirely overcome.

Associated Portland Cement Manufacturers.

The accounts of the Associated Portland Cement Manufacturers' Company, Ltd., show that the past year's profit, after allowing liberally for repairs and renewals, was £265,000 more than the preceding year, and the net profit, after deducting debenture interest, depreciation, sinking funds, etc., was £151,714 more. The trading account shows a substantial improvement, business and prices having both been satisfactory. The company has been, as the "Times" city editor remarks, re-vitalised, and is to-day in a greatly improved position.

NEWS ITEMS.

The New Stationery Office.

We are asked to state that the asphalte to the superstructure of the new Stationery Offices, Stamford Street, will be supplied and laid by Claridge's Patent Asphalte Co., Ltd.

Sale of Architectural Books and Effects.

The late J. M. Whitelaw's books and personal effects will be offered for sale at his rooms, 10, Great Ormond Street, on Friday evening next, October 3rd, from 6.30 to 10 p.m.

School Ventilation.

The new schools at Mossley are being supplied with Shorland's patent exhaust roof ventilators and special inlet ventilators, by Messrs. E. H. Shorland and Brother, Ltd., of Failsworth, Manchester.

Rebuilding a Burnt Bungalow.

Sir William Lever, who has just left England for a tour of the world, has placed a contract for the rebuilding of his bungalow at Rivington Pike, which was burnt by suffragists a few weeks ago.

Personal.

Mr. Frank T. Verity, F.R.I.B.A., who holds the appointment of architect to the Lord Chamberlain's Department, has received the honour of election as corresponding member of the Société Archéologique de France.

South African Brick and Tile Industry.

An excellent clay, suitable for the manufacture of the best type of tiles and bricks, has, it is said, been found near Bloemfontein, and application has been made to the Town Council for a lease of the site. The necessary machinery is stated to be already on hand.

Lectures on Reinforced Concrete.

Reinforced concrete has been added to the syllabus of the South-Western Polytechnic and a course of special lectures will be given by Mr. R. Graham Keevill, A.M.I.M.E., M.C.I., lecturer for this subject at the Northern Polytechnic and the L.C.C. School of Building.

Lightning and Protection from It.

A paper on "Lightning and Protection from It" was read by Sir J. Larmor at the British Association meeting at Birmingham. The author inquired, first of all, as to the extent of the region protected by a straight wire lightning conductor. Such a conductor, in his opinion, hardly disturbed the field of electric force at all except in its immediate neighbourhood, and the consequence was, therefore, that it did not serve to attract a discharge. Such a conductor might, of course, by point discharge at its upper end ionize the air and thus render a discharge more easy. His own impression was that it was the building which facilitated the discharge, and it was the conductor which carried the discharge off.

Aviation Testing Works, Selby.

Messrs. Armstrong, Whitworth and Co., of the Elswick Works, Newcastle-on-Tyne, have begun the laying out of the 900 acres of land which they have purchased at the village of Barlow, near Selby, for the development of their business. About seventy workmen are employed by the contractors in clearing the estate for road-making, and the work, which is under the care of the resident engineer, Mr. Jones, and Mr. Quartrons, of the Ordnance Department, is being pushed

on with all speed. It is not intended to erect any houses on the property, in view of the fact that ample accommodation in that direction is likely to be made at Selby. The new property is to be used for the final experiments in connection with aviation machines, which will be constructed at the Newcastle works and sent on for complete testing at the Selby end.

Official Guide to the Victoria and Albert Museum.

An official guide has been provisionally appointed for six months to conduct parties of visitors (not exceeding twenty in number) round the Victoria and Albert Museum, South Kensington. No charge will be made for his services and no gratuities are to be offered. The guide will start from the entrance hall at 12 noon and 3 p.m. daily, except on Sundays, and each tour will last about an hour.

The School of Art Wood-Carving.

An illustrated prospectus of this school for the session 1913-1914 has just been issued. The day classes are held from 9 to 1 and 2 to 5 on five days of the week, and from 9 to 1 on Saturdays. The evening class meets on three evenings a week and on Saturday afternoons. Some of the free studentships in the evening classes are vacant. Forms of application for these, and any further particulars relating to the school, may be obtained from the secretary, at 39, Thurloe Place, South Kensington.

America's Huge Building Bill.

Some idea of the extraordinary pace at which building operations are going on in the United States can be gathered from figures which have just been published. These statistics show that in 128 American cities during the month of August there was an enormous total outlay for new buildings of rather over £11,000,000. Incidentally, however, this figure is a very low one, and shows the biggest decrease since July, 1910. For July the total was about £12,800,000, and the month before £14,800,000.

Northampton Polytechnic Institute.

The programme of this Institute for 1913-14 has grown into a substantial volume of 500 pages. There is an engineering day college, in which the courses are organised into the two departments of mechanical engineering and electrical engineering, in which the instruction given is evidently very thorough and practical, while among the evening classes and courses include departments in mechanical engineering and the metal trades, electrical engineering and applied physics, and the artistic crafts. The programme is obtainable from the Northampton Polytechnic Institute, Clerkenwell, London, E.C.

New Post Office Building at St. Martin's-le-Grand.

The Office of Works have already begun the excavation of the site of the old General Post Office in St. Martin's-le-Grand, in preparation for the erection of the new building for the accommodation of the Accountant-General's Department of the Post Office. The designs for the new building, which are in the hands of Sir Henry Tanner, F.R.I.B.A., are not yet completed, the first design having been set aside owing to the proposal of the City Corporation to take part of the site for street widening. For this purpose the Corporation agreed to pay the Postmaster-General £126,000, provided that the London County Council would contribute one-half the net cost of the improvement. The Improvement and Finance Committees of

the County Council have already assented to this proposal, and, as it is understood that there will be no opposition to the scheme, the arrangement now only awaits the formal approval of the County Council at its next meeting. St. Martin's-le-Grand will be widened to 80 ft. and Gresham Street to 50 ft., and the improvement will be of great utility in providing for the heavy increase of traffic which will result from the construction of the new St. Paul's Bridge.

Standard Metric Equivalent Tables.

"Standard Metric Equivalent Tables, comprising Weights and Measures and Prices in Francs and Marks," neatly printed on a large card, suitable for hanging up in offices, etc., will be found very useful in showing concisely all the principal equivalents between British weights and measures and the metric system, as well as sterling amounts worked out into the equivalents in francs and marks. Figures supplied by the Board of Trade have been taken as the basis of calculations, and the rate of exchange for francs has been worked out at 25.22 and for marks at 20.40 to the £. The publishers are the Central Translations Institute, 265, Strand, W.C.

OBITUARY.

Mr. T. Harnett Harrison, F.R.I.B.A.

We regret to announce the death of Mr. Thomas Harnett Harrison, F.R.I.B.A., Assoc.M.I.C.E., architect and surveyor, of Liverpool, at the age of seventy. Mr. Harrison commenced as a civil engineer with the London and North-Western Railway Company, and afterwards (about 1872) started in practice as an architect and civil engineer, establishing the present firm of Messrs. Harrison, Son, and Eaton. For about forty years he was civil engineer to the River Alt Commissioners. In 1892 he became president of the Liverpool Architectural Society. When a young man Mr. Harrison excelled in athletics. As a runner he was one of the best, an excellent middle-weight boxer, an accomplished horseman, and a good hand with the oar. He rowed for the Royal Chester Rowing Club, and also won a large number of races in a four-oared boat.

Mr. R. Singer Hyde, M.S.A.

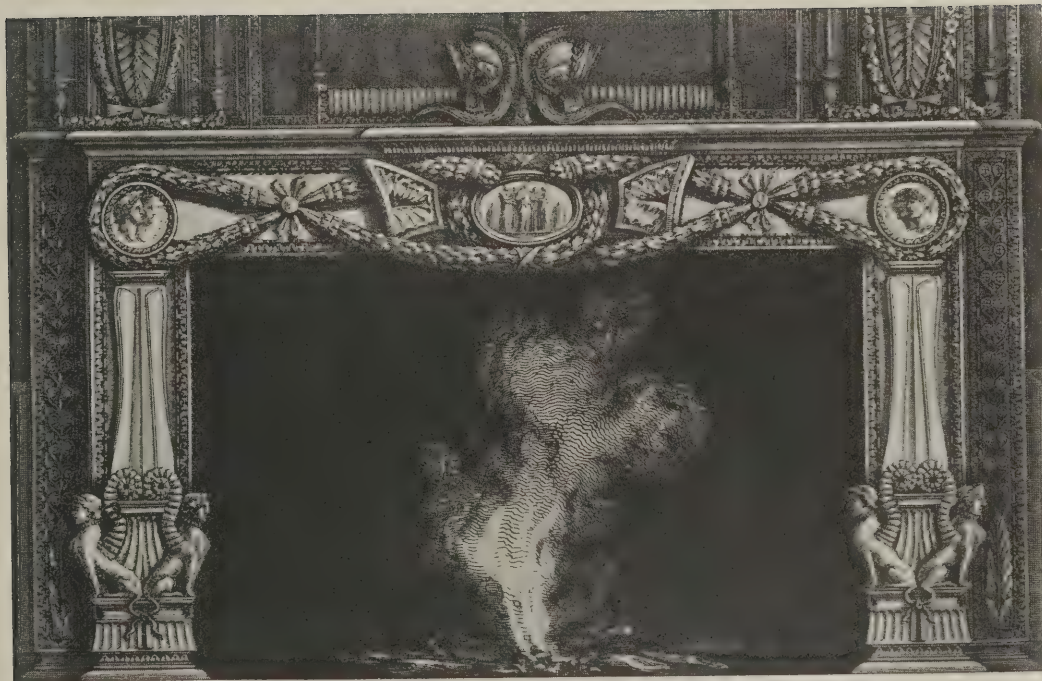
We regret to announce the death of Mr. Robert Singer Hyde, M.S.A., of Worthing, who was for some years partner with the late Mr. Edmund Scott, F.R.I.B.A., of Brighton, during which time many works were carried out to their designs in Brighton, including St. Bartholomew's Church (which has the highest interior of any church in England) and the Chapel Royal. Subsequent to 1882 the late Mr. Hyde practised at Worthing, among his works being St. Botolph's Church, Heene, and recent additions thereto, the restoration of St. Paul's (known as the Chapel of Ease), St. Matthew's Church, the internal alteration and decoration to Christ Church, the spire of Holy Trinity Church, Holy Trinity schools, Sussex Road schools, Little High Street schools, Worthing Post Office, and a number of large villas at West Worthing. Mr. Hyde was the borough surveyor during the year the town received its charter. In addition to the above-mentioned works, he carried out many designs in Worthing and in the county of Sussex. By his decease the town loses an artist, an old practitioner, and one of the oldest and most respected citizens.

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THE ARCHITECTS' & BUILDERS' JOURNAL.

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CAXTON HOUSE, WESTMINSTER.

VOLUME 38 No. 978.

Some Difficulties and Responsibilities.

IN connection with the erection of buildings there are many problems specifically allotted to the builder for solution, which, nevertheless, are of great interest to the architect, and, in some respects, the responsibility involved may be regarded as mutual. Such is the case with unexpected difficulties with foundations and sub-soil that occur while work is in progress, particularly when such work is being carried out in accordance with the Agreed Form of Contract. That form makes no provision for unexpected difficulties. For instance, suppose the foundations of a house were to be laid in a bed of clay, as represented on the plans, but when the work came to be done it was found that large quantities of rock had to be excavated. The difficulty thus created as to who was to pay for the extra labour would have to be decided by the architect. This appears to be the necessary result of Clause 1, which provides that: "If the work shown. . . necessary to comply with the instructions, directions, or explanations of the architect be, in the opinion of the contractor, extra to that comprised in the contract, he shall, before proceeding with such work, give notice in writing to this effect to the architect." The decision of the architect is then subject to the review of the arbitrator appointed under the contract.

So long as there are plans, sections, and drawings forming the basis of the contract to go upon, it is easy to determine whether it is the duty of the builder to carry out any particular piece of work or not. Thus, the contract may be to do only the work described in the quantities and in the drawings. The plans, however, do not of themselves amount to a warranty that the work which they describe is feasible or practicable.

Seeing, then, that the builder or building owner may or may not, according to circumstances, be held liable for unforeseen difficulties, it remains to consider how a contract is to be framed so as definitely to fix the liability one way or the other. In other words, how can the employer avoid making his plans and sections into a warranty? Or (to put the matter from the point of view of the builder or contractor) how is he to provide that every unforeseen difficulty shall be considered an extra?

Take a very simple case. The employer wants a large building erected. In order to obtain tenders he must provide some data for persons to go upon. In particular, they will want to know the nature of the sub-soil—an important consideration, inasmuch as a bed of shifting sand might enormously enhance the cost of laying foundations.

With a view to avoiding liability for a possible misrepresentation, a practice has grown up in recent years whereby employers, while putting forward plans, etc., disclaim all responsibility for them. With this object in view, a clause to the following effect is inserted in the conditions: "The information on the contract drawings is given as the best in possession of the employers, but the employers do not hold themselves

in any way responsible for its accuracy." Other contracts will be found to provide that "The contractor is to satisfy himself as to the dimensions, levels, character, and nature of all existing works, buildings, roads, lands, waterways, sewers, pipes, the nature of the strata through which the excavations are to be made, and all other things so far as they may have any connection with the works in the contract, and is to obtain his own information on all matters which can in any way influence his tender."

It was decided many years ago that a disclaiming clause of this kind, in the ordinary case, affords complete protection to the employer. But more recently it has been held that if plans or drawings contain a misrepresentation the employer may be held liable. In a contract to execute certain sewerage works the plaintiffs covenanted to carry out the works according to the drawings and specification, and the defendants agreed to pay for the work done on receipt of the certificate in writing of their engineer, as provided by the conditions. The specification provided (*inter alia*) that plaintiffs must verify all representations, and not rely upon their accuracy. On completion, the plaintiffs claimed a large sum by way of damages on the ground that the plans indicated the existence of a wall, the non-existence of which had greatly added to the cost. It was alleged that the defendants had fraudulently misrepresented the structure and existence of this wall, and had thereby induced the plaintiffs to enter into a contract to their detriment.

The judgment given in this case held that the saving clause in the specification only protected the Corporation from honest mistakes by themselves or their agents, and that it was for the jury to say whether there was fraud.

From this case it follows that if an employer were to say: "This is a section of the ground, but I do not answer for its accuracy," and it turned out to be inaccurate, and inaccurate to the knowledge of the employer, then he could be held responsible.

Various devices are at the present time being adopted by employers in various parts of the country in order to surmount the difficulty in the case referred to above. One such device came before the writer a short time since. Certain sewage works were in contemplation. Now this is a class of constructional work in which accurate knowledge of the sub-soil is essential. To make an accurate journal of bores, however, is a difficult and expensive proceeding. If such a journal were made by the local authority and put forward as accurate, and it turned out to be inaccurate, the authority might incur grave liability to the successful tenderer. If, on the other hand, no information was given and the various persons tendering were left to make their own borings, the price must be greatly enhanced. In these circumstances the local authority adopted a kind of midway device. They said, and so expressed themselves by a clause in the specification: "We have ourselves made no borings, but Messrs.

A. B. (mentioning a firm of engineers) have made bores, which may be seen for a fee of one guinea. We, the local authority, do not, however, answer for the accuracy of their borings."

The position of a contractor who enters upon work upon terms of this kind is precarious indeed. If the bores prove to be inaccurate, he can have no right of action against the employers unless he can show that they knew of the inaccuracy but deliberately put forward the information. The contractor would of course have a right of action against the man who made the bores, but he would probably be a man of straw, and not worth prosecuting.

The safest course, then, for a builder is *never* to rely upon the employers' measurements in any shape or form. It is to be feared, however, that we shall have reached the millennium before the business community will exercise such a high degree of caution.

V. B.

The English Church of St. Mary, Rotterdam.

IT is more in sorrow than in anger—although the latter feeling is hard to subdue—that we refer to the demolition of the English Church of St. Mary, Rotterdam, but it is impossible not to agree with Mr. A. F. G. Leveson-Gower, who has drawn our attention to the matter, that the destruction of so interesting a building is a barbarous act of vandalism. Either its history or its architecture should have saved it from so deplorable a fate. In 1587, an Act passed by the States General of Holland encouraging the introduction of British manufactured cloth and woollen stuffs enticed many of our countrymen to Rotterdam, and, as a very much later development, the English Church of St. Mary was built, and was consecrated on April 22, 1708, Queen Anne having subscribed £500, and Admiral Sir George Rooke and the Duke of Marlborough £100 each. Marlborough and Rooke worshipped within its walls. As to the architecture, this was sufficiently fine to give rise to a common but (we imagine, after a careful examination of photographs of the elevation and the interior) erroneous assumption that the church was designed by Wren; and, independently of the question of authorship, the design was so characteristic of the best work of its period, and so charming in itself, as to command a degree of admiration that should have preserved it for generations to come. It may be useful to note that the interior fittings (which include a fine organ case) are offered for sale for £500. In accordance with well-established precedent, these pitiful relics will probably find their way to America.

London Labour Settlements.

FOR the moment, the London labour troubles are at an end, always supposing that the difference between the London Master Builders' and the Master Decorators' Associations can be satisfactorily adjusted. The painters have been granted by the London Master Decorators' Association an increase of a penny an hour, with recognition of their union, and a code of working rules, and they thus come into line with the other skilled craftsmen. This consummation, although at first it will entail heavy expense on the employers, will ultimately prove beneficial to them. Trade unions have their merits as well as their defects, and there can be no question that organisation produces a better average type of craftsman. Human beings being naturally gregarious, combination by crafts tends to higher average development than does individualism. Trade unions therefore stand for such mental and moral advantages as arise from conference, and from its necessary corollary—the discipline which becomes necessary to men who are banded together in a common cause. It is commonly alleged against trade

unions that they do nothing to promote technical skill, and there is no answer to the charge except this—that the man who is a member of a union is in a better position to develop his general intelligence, to acquire higher self-respect, a deeper sense of responsibility, and to cultivate good habits generally, than the "free" worker, who lacks the valuable stimulus of corporate feeling. "Recognition," therefore, we conceive to be on all grounds a wise concession. Refusal of it would have been illogical and invidious, and would have given the men a standing grievance that must have operated detrimentally against the employers. We are glad to see that it has been extended also to the labourers; for it is in a sense a recognition of their manhood which cannot fail of beneficial reaction or reciprocation. It thus makes for improved character and higher efficiency. Towards this higher efficiency the employers may be expected to contribute in yet another way; for "better conditions" for the men invariably entail much greater stringency of surveillance, and altogether a keener determination on the part of the employers to use with the utmost economy in every way the labour that has become so much more costly. That the labourers have not stood out for the immediate increase in wages that they had demanded is probably due to their realisation, on representations made by the employers, that immediate increases in wages have a disastrous effect on existing contracts.

The Farce of the "Faculty."

THE farce of the faculty as a means of protecting churches from vandalism is rather unsparingly exposed in a communication to "The Times." It denounces the faculty as "a quasi-private transaction between the individual parish and the Chancellor." Diocesan officers—the Bishop, the archdeacon, and the rural dean—while nominally responsible for the fabric for which a faculty authorising alterations is sought, have in reality no *locus standi* in the matter. "In the vast majority of cases faculties are unopposed. The application is forwarded to the Chancellor—some distinguished lawyer. . . . He will decide it in his chambers." It is evident that the system is antiquated and inadequate. Its insufficiency was perceived by the Joint Committee on Ancient Monuments, who recommended that in all cases where a faculty is desired, a public advertisement in the principal papers circulating in the diocese should be published, with a notice that the plans might be examined in the Diocesan Chancery, and a reasonable interval should be allowed within which criticisms or suggestions might be sent to the Chancellor, who, it was further suggested, should secure the service of a small committee of, say, three architects of repute, to whose report due regard should be had in deciding whether or not the faculty should be granted. Objections urged against these recommendations are that the procedure would be too expensive, and that there would be some delicacy about "condemning or praising the perhaps no less eminent brother architect." It is proposed, therefore, by "The Times" correspondent, that in every diocese the bishop should appoint a competent advisory board, which must be consulted before a faculty is issued for any alteration to the fabric of a church. "On the advisory board there would no doubt be representatives of every archæological society within the diocese, as well as some church officials, such as the diocesan architect (when there is one), the archdeacons, etc." It is not at all clear to us that this alternative proposal is one whit better than that which it is supposed to amend. It makes the most important element merely casual and contingent. Archæologists and archdeacons are all very well in their way; but it is imperative that any such advisory board should comprise a sufficiency of architectural wisdom and experience.

'OUR FATHERS BEFORE US': A CONVERSATION ON HOUSE DESIGN.

SPECIALLY CONTRIBUTED BY H. S. GOODHART-RENDEL.

FOR several hours I had been walking up and down the streets of the newest garden-suburb trying to sort my impressions of the place. The day was hot, and I was tired and ill-at-ease. The street-names annoyed me—Wellhouse Causeway leading into Brook Walk, Field Lane into Glebe Way. Unregenerate I longed for a Solferino Road or a Malabar Avenue. "Look at that!" I said aloud with petulance, as a square of pseudo-Georgian cottages opened before me; "little houses all sash-bars and 'texture,' little grass-plots all posts and chains, and not a single touch of natural, human untidiness anywhere!" "You do not like it?" questioned a voice beside me. I turned to look at my new companion and received something of a shock. He was apparently a very old man with a certain unsubstantiality about him, as though he had walked out of a dream. Despite the strong sunlight, he seemed wrapt about in a garment of shadow. "I did not hear you come up beside me," I said uneasily, "have you been there long?" He nodded his head and smiled. "A long time," he replied. "I have watched all this spring into existence, and much before it." The sun was clouded over now, and a little thin wind flickered round the privet hedges of Glebe Way. Every minute it was growing darker. "Yes," pursued the old man, "I have seen a great deal of this kind of thing in the last hundred years. There was not much of it before that." "But—surely," I began. The old man interrupted me. "Wait and I will explain!" he said. "Follow me."

I followed him up a road that I had not observed hitherto. It was very muddy and on either side were broken hedges bordering ploughed fields. The new suburb had disappeared from view. Suddenly we stopped before a newly-finished house, very different from those we had left behind us. "What is this?" I exclaimed. "I didn't know that anyone built like this nowadays." My companion looked at me with a smile. "What exactly do you mean by 'nowadays'?" he asked. "Why—the reign of George the Fifth—the present day," I said wonderingly. "What could I mean but that?" His smile broadened. "At the present moment," he explained, "we are in the reign of George the Third, the year 1813 to be exact. Perhaps," he added kindly, "I forgot to point out that we were walking back through the nineteenth century?" "You did forget," I said with heat (somehow it did not occur to me to disbelieve him), "and I wish that you hadn't. Things like this are most confusing." "There, there!" he remonstrated soothingly. "I'll show you some sights on the way back. But now let us look at this little house in front of us." (Fig. 1.)

I was still annoyed. "I don't see much to look at," I complained. "It's an architectural *reductio ad absurdum*." My companion's attention was wandering. "Here comes the architect," he said, "a very distinguished man, a pupil of Mr. Plaw. Let me introduce you." A pompous person in unfamiliar attire ap-

proached us down the path. The introduction over, he asked my opinion of his work. "It is very neat and simple," I hazarded. "Exactly, ex-act-ly," assented the great man. "Rural elegance and simplicity. I flatter myself that such an example of chaste design may be widely followed in the neighbourhood. Hitherto we have suffered our rustic structures to be infected with the undue pretension of a style originated in the metropolis. I have often assisted at discussions between my master Mr. Plaw and Sir William Chambers on that particular point. Alas! I fear that Sir William was very obstinate. A most opinionated gentleman as I remember; but I say no more. *De mortuis*—you recall the quotation?" "Perfectly," I said. "But you have Sir John Soane on your side, no doubt?" "Most certainly I have," he responded, "and Mr. Papworth, too, not to mention many others of the modern school. Between ourselves, I am indebted to Sir John for the notion of the flanking screens of the elevation before you. The device adds extent to the front, you will acknowledge, without derogating from the unassuming character of the building. I designed a very similar arrangement last year for a house on the Brightelmstone road, and I am informed that His Royal Highness the Prince Regent stopped his coach on one occasion in order to observe it more closely."

Here my guide interrupted the conversation by observing that we had some distance before us. Farewells were accordingly made, and we proceeded down the road until we came to a milestone. "Do you see what is written on that stone?" he asked me. "Eighteen-twenty-three," I replied. "Precisely," he said. "We are now ten years older, and very near our next stopping-place."

Again we saw a house, but one of very different description from the last. (Fig. 2.) "Ideas change a great deal in ten years," said the old man, meditatively, "and the enthusiasm for simplicity seldom lasts long." I did not speak for a moment, but studied the phenomenon before me. "What is the matter with it?" I appealed. "Why don't I like it?" "Because it is not first-hand," replied my friend. "It is only a plausible imitation of good work; it is not sincere. Look at the proportions, they are entirely unstudied; look at the details, they are careless. The designer has no more technique than a country builder." "You are right," I assented. "Moreover, there is no variety of colour or of texture to help it out." "I should think not!" retorted the old man. "There is nothing that they take greater pains to avoid. That is why they worship stucco and hate brick—red brick, at any rate. From



Fig. 1 (1813.)



Fig. 2 (1823.)



Fig. 3 (1833.)

their point of view I would not say that they are mistaken." "Nor would I" I agreed after a moment. "Really fine design does not suffer by being a little hard in execution. But when, as in the present case, the design isn't good——"

"The only thing to do is to move on towards our next halt." The old man finished my sentence for me, and we took again to the road. Another milestone told of ten more years behind us, and immediately afterwards we turned a corner and came upon an extravagantly castellated villa. (Fig. 3.) I looked at the building for a moment, and then pleadingly at my cicerone. "Must we stop here?" I asked. He returned my gaze whimsically. "Not unless you please," he said. "Then let us get on, for heaven's sake." I stepped forward desperately. We went a little way in silence. "I suppose that last object was the result of the Waverley Novels?" I inquired, as we approached another milestone. "It's all part of the same thing, in a sense," replied my companion. "But in architecture it's entirely superficial so far. Why, the same man that devised those battlements designed the pseudo-Grecian villa we saw ten—no, twenty years ago." (We passed a milestone at this moment.) "And at the present time he is experimenting in Italian villas, a specimen of which we are approaching."

We walked for a few minutes without speaking, during which time a small belvedere appeared to detach itself from the trees and to grow rapidly larger as we drew near. "Is this it?" I questioned. (Fig. 4.) But the inquiry proved unnecessary. An elderly man with a roll of drawings under his arm approached us and shook hands with my friend. "You were coming to inspect my latest essay?" he asked us. "I am indeed gratified. I fancy that you will find it quite *à la mode*." "Of that I am already assured, since it is yours," rejoined the other. "You set the modes for the rest to follow." The architect blushed with pleasure. "Oh! I would not say that!" he deprecated. "I am indebted to others for many suggestions, though perhaps I have done something in adapting them for practical realisation. My friend Mr. Parker's *Villa Rustica*, for example—you know that valuable work?" The question appearing to be addressed to me, I answered in the affirmative. "Those two volumes," he pursued, "have been worth at least £500 a year to me ever since they appeared! I take off my hat to Mr. Parker, sir. The native style of Northern Italy, shorn of certain extravagances is, in my opinion, at once the most appropriate, the most inexpensive, and the most genteel that can be suggested for a modest residence. I confess that when Mr. Barry first introduced it I had my doubts. The public was hardly ready for it. But the improvement of taste during the last few years has changed all that, and I confidently anticipate the approval, the enthusiastic approval, of future ages for that paragon of comfort and elegance—the Victorian Villa."

For a moment he stopped to breathe, and I could not resist the temptation of saying: "I think that we

have already passed some less recent work of yours on this road?" "Yes, you must have done so," he replied, not at all abashed. "So that you will know that I have catered for all tastes in my time. I confess that I plume myself a trifle on my versatility. I have also a line in Cottages Ornés that may become fashionable, if I am spared to perfect it." "I trust that you may be," I said. "I shall watch for them with interest." And with this I took my leave, and stepped forward beside my companion.

"The Victorian Villa," he mused. "I am afraid that our friend is too complacent a prophet if he thinks that he is establishing a model for future ages. I seem to have heard rather hard things said about 'the Victorian Villa.'" "They are so badly built," I complained. "Some are, some are not," he corrected me. "Real jerry-building is less common now than it will be a milestone or two further on. And I must say that I find these little pseudo-Italian houses very comfortable and picturesque." "That is a new point of view to me," I admitted. "I certainly fear that we shall see worse before we get home." "I grieve to say that we shall do so immediately," warned my guide. "Look on your left." I looked and I beheld a house of moderate size and repellent aspect. (Fig. 5.) It was built of red brick, coloured over and tuck-pointed in black, with thin dressings of Bath stone. The roof was banded with "fancy" and plain tiles, and crested with an ornamental blue Staffordshire ridge. But salient from all else were the immense cusped barge-boards, sticky with fresh brown graining, and glistening in the sun. "Alas!" I said, "the sham castle was better than this." "I suppose that it was, in a way," the old man agreed, "but their relative merit does not interest me. The comparison has another significance of so much greater importance." "What?" I inquired, as I was obviously expected to do. "The triumph of the middle-class," said my friend, a little pompously; "the middle-class refusing to ape lords and feudal frippery, but sentimentalising instead about humble cottages and lowly dwellings. The result of course was barge-boards." "I don't quite follow the last bit," I said. "Why should the result of the middle-class be barge-boards?" "Because it *would* be," was the slightly irritated answer. "All the houses that we have seen so far have represented the taste of an aristocracy. The artificial simplicity of the first, the Grecian affectations of the second, the romanticism of the sham castle and the picturesqueness of the sham Italian farm—all these qualities belong properly to the occasional retreats of folk rich enough to indulge whims. At worst they are amusing, at best they may be charming; but as middle-class homes they are a failure. Newly prospering people with memories of struggle are apt to take life rather seriously. They are generally democratic, choosing to shine among their inferiors rather than be outshone by their superiors. Therefore, when they come to build houses their ideal is a gorgeous cottage—ostentatiously gorgeous and ostentatiously a cottage. Take into account the naturally bad taste of the



Fig. 4 (1843.)



Fig. 5 (1853.)

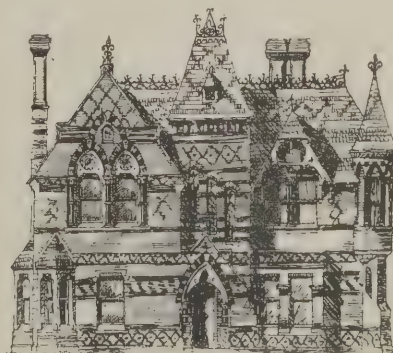


Fig. 6 (1863.)

partially educated, and the result of it all is barge-boards." "I think that I see your meaning," I said. "But is this really representative of what is being done? Is all the work as bad as this?" "No," he replied; "the Church architects are doing better with their parsonages and school-houses; but those are not exactly our affairs. To return for a moment, however, to what I was saying——" "If you will forgive my reminding you," I interpolated apologetically, "the day is getting on—and——" "Of course, of course," he exclaimed; "I forgot that you must get back before nightfall. Let us make all haste."

We accordingly pursued our way, and the next milestone was soon behind us. Suddenly my guide paused. "Perhaps I ought to prepare you for the next example," he said; "I always feel a little nervous as to the effect it might have on anyone who was not expecting it." "I am past being surprised at anything," I returned wearily; "let us get it over." The old man did not seem satisfied. "Ruskin *did* upset things so!" he murmured beneath his breath; "I wonder if you have any idea of what it will be like." "Oh! come," I urged impatiently. The old man sighed and led me forward. "I have warned you," he reminded me; and then the house burst into full view. (Fig. 6.) The first shock deprived me of speech. When at length I could find words I asked to be taken away. "Very well," consented my guide. "I admit that even to me this house is very trying." "I cannot trust myself to talk about it," I said. This proved not to matter in the least. My companion intended to talk about it. "By an unlucky chance," he began, "the craze for 'polychromy' synchronised with the craze for developing an eclectic semi-mediæval style all in a moment. The two ideas



Fig. 7 (1873.)

together were too much for many weak heads." "Their results are far too much for mine," I interrupted. "Are we near the next object?" "In the dip of the road ahead, you will see it," was the answer.

I accordingly looked anxiously in front of me, as we surmounted the crest of a little hill. If things were going on as they had been for the last twenty years I doubted if I should return sane to my own epoch. But a pleasant surprise awaited me. (Fig. 7.) "That is not nearly so bad," I acknowledged, cordially. "No, it is not," the old man agreed, "thanks to the labours of men like Godwin and Burges." "And surely Nesfield, too?" I ventured. "Yes, and Somers-Clarke and Pritchard, and—and—plenty of others. There is no lack of good men. This house, as a matter of fact, was designed by a young disciple. But the influence of the others has done something for it." "I should quite like it," I said, "if it were not so scrappy." "It is English," was the grim rejoinder; "but work like this may really lead to something." "What will it lead to?" I inquired. "Until we get to the next milestone I shall not be able to remember," the prophet replied. "Let us start, then," I said; "I am rather curious." "As you wish," he replied.

(To be concluded.)

MECKLENBURGH SQUARE.

SPECIALLY CONTRIBUTED BY A. E. RICHARDSON.

THE by-ways of this wondrous London are even more fascinating than the main arteries; certainly they are more restful. By contrast with the latter they resemble, in their calm placidity, the backwaters of some mighty and irresistible stream which, having paused to fill the adjacent ditches, flows on heedless and relentless. One knows some of these places by sight, perhaps one has a nodding acquaintance with many, others possibly one takes for granted as existing, in the same way as one believes in Kamschatka or Timbuctoo. Then suddenly, after years of contemptuous familiarity, such places are rediscovered; the drab street is changed to a realm of fancy, the umbrageous square becomes a veritable oasis, green and tempting amidst the serried streets.

Mecklenburgh Square is such a place—a fascinating relic of the day before yesterday. There are several entries into it; the most direct is through John Street, that late eighteenth-century thoroughfare which tempts the wayfarer from the charms of Gray's Inn Gardens, past the overflowings of the legal centre which mark the beginning of the way, until Doughty Street and the boarding-houses give place to scenes of greater interest. It is, indeed, hard for us to realise that scarcely a century has passed since this district, with the exception of the grounds and buildings of the Foundling Hospital, was a series of open fields, through which Gray's Inn Lane meandered as a suburban road, having a few houses and shops near the junction with Theobald's Road. At this period Red Lion Street and Lamb's Conduit Street were recognised as fashionable shopping centres. Some idea of their vanished splendour can still be traced in the old shop-fronts on each side of the street. Pentonville had yet to reach its full development, Russell Square was finishing under the hands of that energetic builder, Burton, whose activities had yet to be extended to the squares of Woburn and Tavistock, Coram Street, Burton Crescent, and the district of Brunswick Square. The Hospital and Pennethorne's Church of St. Jude in Gray's Inn Road were both schemes for the future; while the mountainous ash-heap at King's Cross, skirted by the sluggish waters of the Fleet, was to increase in bulk until the time came for the exportation to Moscow. But, returning to a study of Mecklenburgh Square, and especially the eastern side, we are confronted with the lengthiest as well as the most comprehensive street frontage associated with any London residential centre. Some time ago a very learned architect sentimentally remarked: "Streets of houses will never again be considered as compositions." This theory, however, has been dispelled by recent improvements, such as those on the Westminster Estate, where the practice of combining several houses into one complete architectural scheme has been revived.

Mecklenburgh Square was designed in 1811 by Joseph Kay, a pupil of S. P. Cockerell, who succeeded the latter as architect to the Foundling Hospital. Kay's design is quite distinct from the Regent's Park terraces and dissimilar in every particular from the work at that period building under Burton's direction. The composition of the east side is divided into three main groupings, which in turn are linked by ranges of six houses between the end groups. The ornament is well selected and effectively introduced to enhance certain parts of structure; for example, the festoons between the first and second floor windows serve the purpose of subtly connecting these features. In the prominent part of the composition, namely, above the continuous cornice which traverses the entire street without a break, will be noticed how interest is given to the attic storey. The whole frontage shows much

care and thought in the arrangement of the several elements which give the design such a refined character. The closer one studies the essentials of buildings erected a hundred years ago, the more one is repaid; not only does the tradition of the eighteenth century show itself more clearly, but one begins to understand the greater importance of correct proportion over other considerations, the value of contrast and rhythm between voids and solids, and, what is neglected to-day more than anything else, the study of colour contrasts between broad surfaces of material. The architecture of the side streets and lesser places of London cannot be held up as offering all the virtues of first-class building; often the compositions encountered are better than the details. But a cultivation of a broad taste which subjects buildings to a critical analysis and learns to judge their merits with a right sense of perception will do much to enlarge the present limited horizon. Once the cant terms, good, bad, or middling, are dispensed with, and architecture is discussed on a wider basis, then its underlying truths will be found as inevitable and as truthful as the history of those people among whom its well-being was nurtured.

CORRESPONDENCE.

The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.

Correspondents are asked to be brief, and to write on one side only of the paper.

Mr. Chiozza Money and the Building Industry.
To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—A few years ago the building trade ranked second to agriculture in importance and numbers employed, according to Mr. Money's statistics. You do us a good service in bringing out Mr. Money's real attitude towards us, in the letter from him which appeared in a recent issue. You would do still greater service if you could get him to say what are his objections to taking off the 40 to 50 per cent. taxation on our products, in the shape of local rates and his pet income taxes. Does the effect of this taxation directly prevent new buildings being substituted for old, whether slums or any other?

When he says "the Government of a state or a city should go outside city borders, acquire by compulsion the whole of the agricultural land at agricultural prices," does he mean land immediately adjoining a city generally termed building land, or, as in the famous garden city example, some miles away?

We had better not take his rôle as a prophet too cheaply. Several costly schemes of the type of the Insurance Bill have matured far too quickly for the well-being of the general taxpayer, and we are further away from peaceful enjoyment of life and liberty of action than ever. Is even Ireland peaceful and contented just now? The Irish land purchase and State building of labourers' cottages, and other similar questionable enterprises in Socialism, are directly to the benefit of great landowners and other monopolists, and to the great disadvantage of the general producing public.

As an instance of what is meant by compulsory acquisition of land in England, it was recently reported that a Local Government Inspector held an inquiry into the proposition to purchase one acre of land at Limpsfield (a Surrey village) for £300. No one at this inquiry seems to have questioned the value of this acre of what I suppose would come under Mr. Money's definition "agricultural land."

Would it not be a sensible action if Mr. Money added his name to the 170 odd Members of Parliament who petitioned the Premier to shift the burden of taxation off buildings and other improvements on to a land values basis, before embarking on his "State land purchase for England" schemes?

BUILDER.

UNHEALTHY OFFICES.

EARLY legislation for the betterment of office interiors is foreshadowed in the recently issued report of the Medical Officer of Health of the City of London, whose revelations, and those made by the officials of the National Union of Clerks, as to the unhealthy conditions under which many clerks are condemned to work have created a considerable sensation. In most of these cases, according to our own personal observation, the architect is not to blame. Where the original plans show a perfectly sanitary interior, with a sufficient amount of cubic content, a proper share of natural light, and efficient ventilation, it too frequently happens that all these conditions are negated by the insertion of partitions by a jobbing builder, or even by a carpenter, who is as ignorant or as indifferent as the tenant concerning hygienic requirements. It will be seen from the following extracts from the statement issued by the National Union of Clerks that it deals with conditions to which no architect would consent.

It is stated on behalf of the Union that thousands of clerks are compelled to work not only in unhealthy underground offices, but in offices just as insanitary which look out on courtyards. It is also stated that a factory inspector has frequently to pass through inadequately ventilated and lighted rooms, where clerks are employed, on his way to the workshop which he is to inspect, and yet he is powerless to call attention to the unhealthy condition of these premises. The mortality of clerks from diseases of the chest is twice as high as among the general population. Twenty-five per cent. of the deaths are due to consumption, and 33·1·3 per cent. to some form of lung disease. This excessive death-rate is ascribed partly to the sedentary nature of clerical employment, and partly to the dirt and dust, the cold in winter, and the heat in summer, of the offices in which many of these clerks have to work.

Among the cases of unhealthy offices in London, Hull, and Liverpool reported to the National Union of Clerks are the following:—

"Office has no windows; only a skylight through which, when open, the rain enters. The skylight is therefore generally kept closed, and as a consequence fresh air rarely finds its way in. The office is heated by an ancient and imperfect gas stove, which gives off noxious fumes."

"Office draughty. One hundred and fifty clerks working in a space of 120 ft. by 20 ft. Insufficiently warmed. There is a 'Black Hole of Calcutta' in one part of the office, in which seven clerks work, where no natural light enters, except a glimmer across the other parts of the office through an open arch. From autumn to late spring artificial light (electric) is necessary the major portion of the day. No proper ventilation is fitted in most parts, and open windows cause discomfort to those immediately in range, so that the air is often thick."

"Office very dirty and swarming with rats (seven caught in a week). Young girls working in this office. Inspectors call in other parts of the building, but never visit this office."

It is proposed next Session to amalgamate the Bill for the inspection of railway offices, which is promoted by the Railway Clerks' Association and the General Bill of the National Union of Clerks.

The Medical Officer of Health for the City of London agrees that legislation is necessary. He refers to the Railway Offices Bill as a step in the right direction, but says it is difficult to understand why provisions for efficient ventilation and adequate lighting should be restricted to railway offices.

Two other Bills dealing with the conditions of employment of all clerks have, however, been before Parliament for the last two Sessions.

THE PLATES.

St. John's Institute, Westminster.

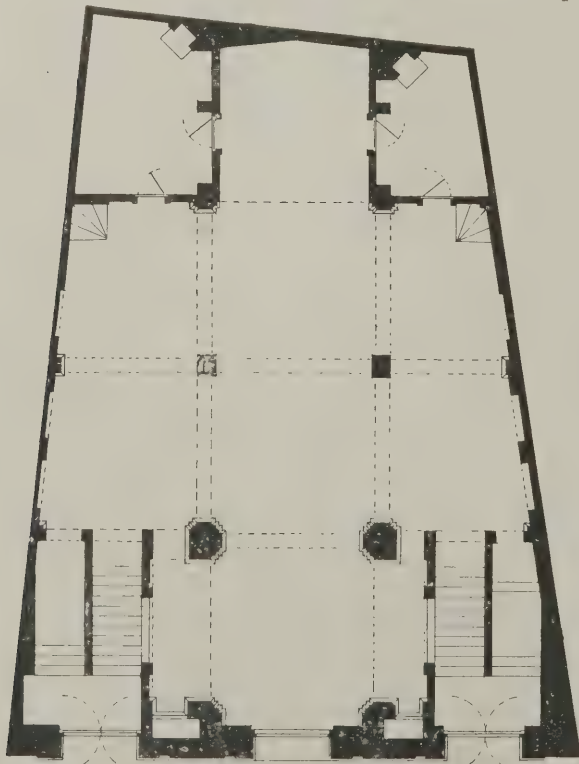
IN the narrow streets of Westminster are many interesting examples of modern work, more especially in the area immediately adjacent to the Abbey. Among these examples is that little building in Tufton Street, St. John's Institute, which Mr. Lutyens built some years ago for Archdeacon Wilberforce. It presents quite a short frontage, and embraces but few elements, yet the passer-by with an eye for architectural merit cannot fail to be arrested by its distinctive charm.

Business Premises, 43, Pall Mall, London.

The whole of the lower part of the above premises has been reconstructed to suit the requirements of Messrs. Christopher and Co., Ltd., wine merchants, their old premises, No. 118, Pall Mall, having been acquired for the extension of the United Service Club. The woodwork to the front is in oak, polished, the metal-work being in bronze and wrought iron. The interior walls to the offices are panelled in oak. The work was carried out under the supervision and to the designs of the architects, Messrs. Pilditch and Co., of 2, Pall Mall East. We have included the plate in our series of "Modern Shop Fronts," because, though it is not, strictly speaking, in use as such, its treatment is appropriate to the needs of some businesses. Not in every case is a large, unbroken area of plate glass required, and for that reason we may well illustrate a design like this one.

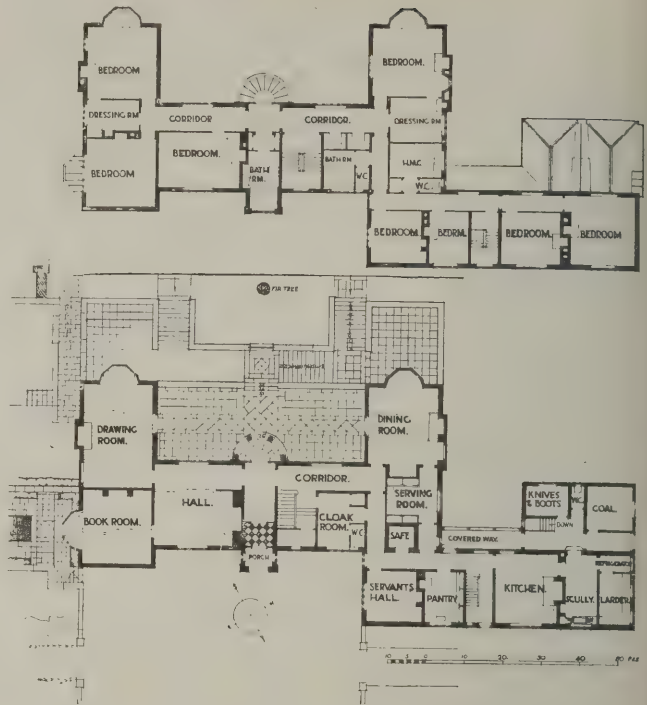
Neo-Grec Detail.

The angle of the cornice of the Palais de Justice, Paris, which we illustrate this week, is one of the most characteristic details of a very notable building. Here we see developed in the most brilliant manner that mingling of Greek forms with modern motifs which Duc so cherished. Yet, though the old detail has been so closely followed, the resulting work is distinctly new. The eagle terminal, for instance, could not be mistaken for anything but modern French work, and it is the same with the other parts.



SCALE 10 5 0 10 20 30 OF FEET

ST. JOHN'S INSTITUTE, TUFTON STREET, WESTMINSTER.
EDWIN L. LUTYENS, A.R.A., F.R.I.B.A., ARCHITECT.



"BRAND LODGE," MALVERN.

ERNEST NEWTON, A.R.A., F.R.I.B.A., ARCHITECT.

The Old Museum, Berlin.

We gave a short description of this great building last week, when illustrating the sculpture group entitled "The Amazon." The companion piece of sculpture, "The Lion-slayer," which is illustrated in the present issue, is by Albert Wolff. It is a vigorous piece of work, and is set in admirable relation to the colonnade behind it. The lion, however, has a rather stagy appearance, and in contemplating it we cannot help recalling the mock beast which Bernard Shaw has introduced into his latest production.

Houses in Mecklenburgh Square.

The considerable merit which is displayed by many buildings of the early nineteenth century is now being widely recognised; hence we feel it will be of service to show some typical examples of the period. The houses in Mecklenburgh Square, now illustrated, were built in 1811 from designs by Joseph Kay, a pupil of S. P. Cockerell. A detailed description and criticism of them will be found in an article on page 350.

"Brand Lodge," Malvern.

Mr. Ernest Newton is such a master of house-building that all his work may be studied with the greatest interest. Houses more straightforward in design it would be difficult to find. They are eminently sane in treatment, and are free from those little tricks which may tickle our fancy for a moment, but which become wearisome when we have them permanently before us. The house at Malvern, now illustrated, is one of his latest works. It is built on a sloping site amid well-wooded surroundings. The walls are rough-cast, and the roofs are covered with Precelly slates. At the rear of the house is a paved terrace, to the right and left of which flights of steps lead down to the garden below. Messrs. Collins and Godfrey, of Tewkesbury, were the builders.

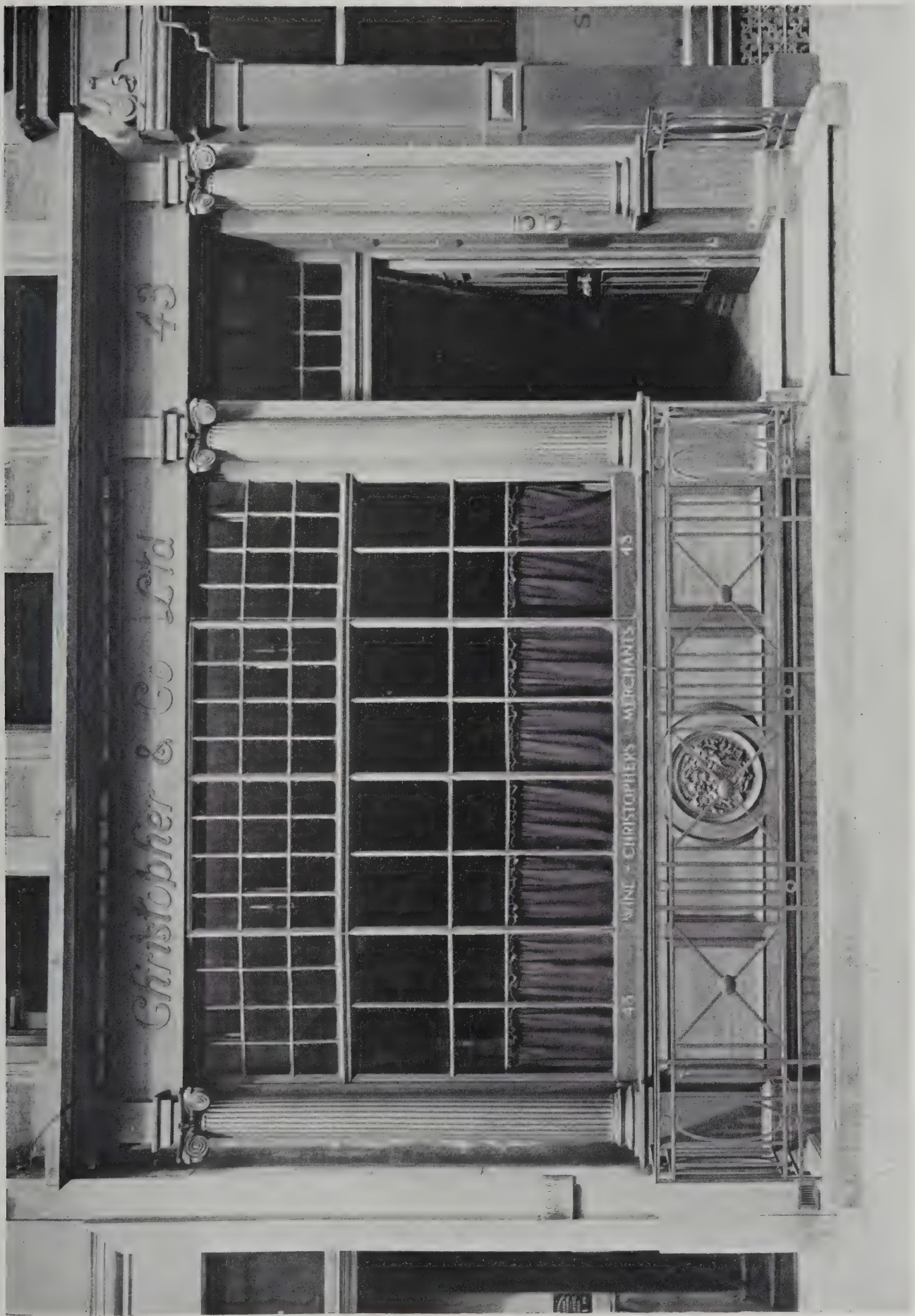
Working Drawing of National Museum of Wales, Cardiff.

In our issue for last week we published a working drawing of the dome of the National Museum of Wales, now being erected in Cathays Park, from designs by Messrs. Smith and Brewer. This gave the section. We now reproduce a working drawing showing plans of the dome and part of the second floor. The two drawings should be studied together. Both are self-explanatory.



CURRENT ARCHITECTURE. III.—ST. JOHN'S INSTITUTE, TUFTON STREET, WESTMINSTER.

EDWIN L. LUTYENS, A.R.A., F.R.I.B.A., ARCHITECT.



MODERN SHOP FRONTS. II.—BUSINESS PREMISES, 43, PALL MALL, LONDON.
PILDITCH AND CO., ARCHITECTS.



NEO-GREC DETAIL. II.—ANGLE OF CORNICE, PALAIS DE JUSTICE, PARIS.

L. DUC, ARCHITECT.



MONUMENTAL ARCHITECTURE. II.—THE OLD MUSEUM, BERLIN: DETAIL OF FAÇADE, WITH SCULPTURE GROUP
"THE LION-SLAYER."

K. F. SCHINKEL, ARCHITECT. A. WOLFF, SCULPTOR.



EARLY NINETEENTH-CENTURY ARCHITECTURE. I.—HOUSES ON EAST SIDE OF MECKLENBURGH SQUARE, LONDON.
JOSEPH KAY, ARCHITECT.



Entrance Front.



Garden Front.

MODERN DOMESTIC ARCHITECTURE. II.—“BRAND LODGE,” MALVERN.

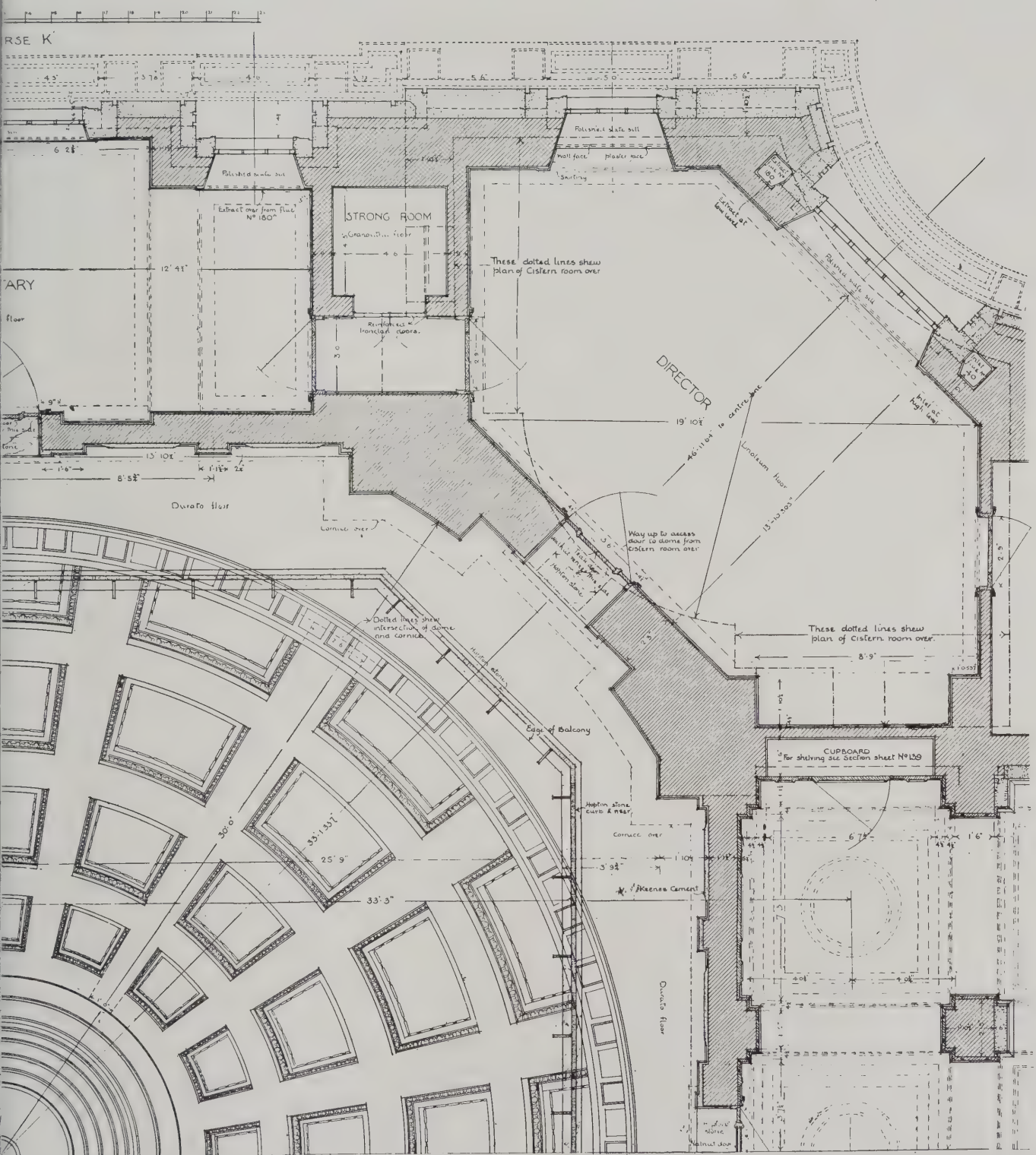
ERNEST NEWTON, A.R.A., F.R.I.B.A., ARCHITECT.

SCALE OF FE

PLAN TAKEN THROUGH



SMITH AND BREWER,



1/2 PLAN OF DOME LOOKING UP

Smith and Brewer,
Architects,
2 Gray's Inn Square,
London, W.C.

HERE AND THERE.

GOTHIC may be taboo at the present time, in circles of the elect, but there is no gainsaying the perennial interest of personality which attaches to those fervid revivalists who strove so mightily during the latter half of the nineteenth century. And the reason seems to be that they put something into their work which raised it above a mere affair of workaday building, some devotional zeal which transfused the outward forms of architecture. Here let us take courage in both hands and say a word—even offer a glowing tribute—to such men as A. E. Street and John Sedding. For, whether the views they held be right or wrong, Architecture to them was something more than form alone. To even hint that they were right in this is, I know, to be suspect of an egregious heresy; yet, despite the intellectuals, I will put in my lot with the Goths in so far as church work is concerned. They were mistaken in their belief that the spirit which animated the builders and craftsmen of the Middle Ages could be caught again, and they were mistaken also in their view that handicraft was the supreme expression, a view which led Ruskin to affirm that the glory of a building was to be found in its sculptured and painted enrichments rather than in any dominating shape; but they were wholly right in the burning enthusiasm which they brought to bear on their work. Architecture, thus regarded, is something far greater than the medium through which to acquire a percentage. I am tired enough of those presidential exhortations to enthusiasm, more especially when I think of the waste of good material which the speakers have been responsible for, but, when all is said, enthusiasm is the force which drives us on towards the highest effort; without it, no architect can ever hope to achieve anything great. And generally with an enthusiast there is individualism of mood and manner which draws the interest and the service of those within the magic ring. John Sedding's case well illustrates this. For an intimate revelation of the man we must go to those who were in personal contact with him. Mr. H. Wilson, that most gifted artist who has forsaken architecture for the crafts, gives us one such peep into the everyday life and character of John Sedding. "He would come," says Mr. Wilson, "and taking possession of our stools would draw with his left arm round us, chatting cheerily and yet erasing, designing vigorously meanwhile. Then, with his head on one side, like a jackdaw earnestly regarding something which did not quite please him, he would look at the drawing a moment, and pounce on the paper, rub all his work out, and begin again. . . . His memory for details and things he had seen and sketched was marvellous, and he could turn to any one of his many sketches and find a tiny scribble made twenty or thirty years ago, as easily as if he had made it yesterday. . . . He was the living embodiment of all that an architect should be; he had the sacred fire of enthusiasm within, and he had the power of communicating that fire to others, so that workmen, masons, carvers, could do, and did lovingly for him, what they would not or could not do for others. We all felt and still felt that it was his example and precept that have given us what little true knowledge and right feeling for Art we may possess. . . ."

Another glimpse of John Sedding, this time out of office hours, is given by Professor Lethaby, who says: "He always led the fun; at one time at the head of a side at 'tug of war,' at another the winner of an 'egg-and-spoon' race." And then we come to his more serious characteristics. Here the Rev. E. F. Russell serves us. He says: "His very faults were the faults of childhood, the impulsiveness, the quick and unreflecting resentment against wrong, and the vehement denunciation of it. He trusted his instincts more than his reason, and, on the whole, his instincts served him

right well, yet at times they failed him, as in truth they fail us all. . . . Let a thing appear to him false, unfair, or cowardly, he would lower his lance and dash full tilt at it at once, sometimes to our admiration, sometimes to our amusement when the appearance proved but a windmill in the mist, sometimes to our dismay when—a rare case—he mistook friend for foe."

Well, then, may we pay a tribute to so many-sided a character as that of John Sedding, and as we survey his work—in particular, that incomplete monument to his genius, Holy Trinity Church, Sloane Square—we may have added to our admiration that peculiar interest which rests on some knowledge of the architect's life-story, a story that ends dramatically. Here are the facts. On Easter Tuesday, 1891, he went down to Winsford, in Somersetshire, to look after the restoration of the church there, the end of his journey involving a ten-mile walk through a chill valley. Whether this was his Valley of Death, or whether the seeds of death were already with him, is not known, but the next day he fell ill, and on the following Tuesday he died in the lone country vicarage. And the tragedy does not end here. There is a sad sequel. At St. Alban's, Holborn, in the presence of a great gathering, a Solemn Requiem was said for John Sedding, his coffin being covered by a beautiful pall which he himself had designed and Rose Sedding (his wife) had embroidered. A week later, at the very same hour and spot, beneath the same pall, lay the body of his wife. It is a tragedy that is not unique, but its poignancy is none the less acute, and for architects it has a peculiar interest as marking the end of a great man and an equally great woman.

* * * *

How difficult it is to reconcile practice with creed. A fortnight ago I write, in a desultory way, about colour in architecture, an old theme worn threadbare. We are willing to refer in glowing terms to the work of those great Pagans who produced the sublime temples on the Acropolis, and equally to the mediæval artistry of Christian Europe, but when it comes to the application of any such methods to the buildings of the present day, we turn away whole-heartedly. A few like Mr. Halsey Ricardo and Professor Beresford Pite have had the temerity to build a coloured house, but we like not their works, preferring to reserve the delights of a peacock-blue cornice and crimson dadoes for the architectural courts of the Crystal Palace. Hence as we walk abroad in the neighbourhood of Pall Mall to-day there is plenty to shock us. The clubs have been handed back by the decorators, and they make us open our eyes a little, wondering whether we have not strayed into the region of Earl's Court. Barry's beautiful front to the Travellers' has taken on a fulsome ochre skin that is positively depressing to gaze upon. Close by, the Army and Navy—so nobly Italian without, so riotously mid-Victorian within—shouts out (inside) in painful contrasts of white and blue-grey. But worst of all is the Athenæum. Here a symphony in drab green and whitey-white has been indulged in, while Henning's Classic frieze rejoices in a golden-yellow background. In spite of Marley's ghost, let us hope it all be a myth that the spirits return to the scene of their labours; else Decimus Burton's lot is a sad one indeed.

* * * *

I cull the following from Sheridan Ford's edition of "The Gentle Art of Making Enemies":—Whistler, when leaving the White House, put this legend over the door: "Unless the Lord build the house, their labour is but vain that build it. E. W. Godwin, F.S.A., built this one."

UBIQUE.

A ROMAN FORTRESS IN WALES.

About a mile to the north-west of Llandrindod Wells the steep western bank of the River Ithon is cleft by two small tributary streams, one-third of a mile or so apart. The area thus enclosed on three sides slopes gently to the sheer river bank on the south-east, and is further isolated by a decided, though not an abrupt, slope of something more than a hundred yards. Castell Collen, the "Fortress of the Hazel Trees," situated about a mile to the north-west of Llandrindod Wells, is a rectangle enclosed by a well-defined rampart and wide ditch, and its character has always clearly indicated its origin. But until two years ago nothing more definite could be said about the place.

In 1911, after the Cambrian Archaeological Association had visited the site, a committee was formed to carry on excavations. Work was commenced and continued during several months of that year, and has been resumed this summer under the supervision of Mr. H. G. Evelyn White, of the New York Metropolitan Museum Expedition in Egypt.

During the first season's work trial trenches, cut under the direction of Mr. Wellings Thomas, of Llandrindod, revealed four stone buildings in the area south-west of the *via principalis*. One of these, a rectangular structure, with three doors, lying in the western angle of the fort, is probably modern; the other three, which are obviously Roman, are all situated along the south-west side of the street.

First in order, and just within the north-west gate, is the granary. It is a long, narrow building of the normal type, set parallel to, not at right angles with, the line of the street. The massive walls of drystone masonry still stand five courses high in places, and are strengthened by closely set buttresses and pierced by ventilating slits. Of the raised floor nothing remains, but the foundations of the dwarf walls which carried it have been traced. It is surprising to find that in more than one case these sleeper walls which are parallel to the end walls of the building, actually block the ventilating slits. The whole (says a special contributor to the "Times") is an excellent example, however crudely built, of the basement plan of a Roman military storehouse.

Next to the granary on the south-east is the *principia*, or headquarters building, cleared by Mr. H. Lewis in 1911. It is an almost square structure, with a frontage of 78 ft. and a depth of some 83 ft. From the street a wide gateway leads into a courtyard once paved with stone flags and surrounded by a verandah or passage-way. Behind the courtyard is a narrow hall, 15 ft. wide and some 63 ft. long, with rough masonry piers on its north-eastern side and a small room at its north-western end. At the back of the whole block is the usual range of five chambers, of which only the central *sacellum* calls for particular notice here. Originally of the same, or nearly the same, size as the flanking chambers, it was found to be liable to damp, or even to periodical flooding. To prevent this, inner side and back walls were built, and the space between this and the original walls was packed with clay. The stone building differs little, if at all, from the normal plan; more interesting, perhaps, is evidence that it was not the first structure on the site. Mr. Lewis found everywhere post-holes which have no connection with the stone building, and seem to indicate earlier wooden *principia* of slightly smaller dimensions.

To the south-west of the *principia* is a large block of domestic character—the

commandant's house. This building, the principal objective of last season's work, is pitifully convulsed in an effort to compromise between at least three divergent alignments. The entrance passage was, again, from the street, and was flanked by small cells or chambers for the porter and servants. A courtyard occupies a large part of the whole area of the building, and is flanked by two ranges of rooms on its south-west and north-west sides. Here are few signs of comfort, and none of luxury. In the western angle two rooms with stone-paved floors were heated by a shallow hypocaust of crude construction, and are built over the remains of earlier rooms which boasted a better built hot-air installation with brick pilæ. The earlier chambers seem to have been superseded and filled in, because, sunk as they were some 3 ft. in the clay, wet weather, or even a heavy shower, must have filled them with water. There is no vestige here of painted wall-plaster or of tessellated pavement; elsewhere there is even no sign of a substantial floor.

Both the *principia* and the commandant's house lie far closer to the south-western rampart than is usual in a Roman fortress—indeed, the back wall of the latter is scarcely 10 ft. from the inner face of the rampart. This disposition led to the discovery of an important fact in the history of the fort. Parallel to the existing south-west rampart and some forty yards distant from it is a natural terrace edge, which has been artificially scarped, straightened, and furnished with a ditch. No surface signs showed that this outer line had ever returned to join the main fort, but trenches cut this summer across the level space between its western end and the western angle of the main fort showed that the north-west rampart of the existing fortress had once continued westwards to meet the so-called "outwork" at right angles. Here was found the massive stone foundation of the rampart face and ditch, which had been carefully filled in and levelled over; both were in direct continuation of the north-west rampart and ditch of the main fortress. The explanation is obvious: at some date a part of the garrison was withdrawn, and the fortress was proportionately reduced from an area of $5\frac{1}{4}$ acres to $3\frac{3}{4}$ acres. This fact gains in significance when we recall that Professor Haverfield a few years ago showed that there was reason to believe that troops were withdrawn from Wales for service in the North under Hadrian or Antoninus Pius.

THE ARCHITECT AND THE ILLUMINATING ENGINEER.

Under this title, a new monthly publication, the "Lighting Journal," has a well-written "appeal for co-operation" between the architect and the illuminating engineer. The relations existing between these professions appear to the writer to be of the friendliest, at the present time; but something more tangible than this is required if the development of their respective interests is to be assured. Architecture is the oldest of the arts, but this fact does not imply that its exponents are prevented, by tradition, from acknowledging the claims of the youngest of the arts upon their attention.

The art of the architect has flourished conjointly with the practice of building construction. Improvements in materials and methods for the latter have immeasurably extended the field in which the architect can ply his art, but those improvements are virtually the result of close co-

operation between himself and the builder. Experience has proved, and is further proving, that it is best that the client on whose behalf the architect is acting should deal with him alone. The specialists referred to may lay their claims before the client, direct, if the architect is an unreasonable or obdurate person; but the better plan is that there should be a complete understanding between parties, which leaves the architect the primarily responsible head. At any rate, it is to the mutual interest of the members of the associated professions, that the client should be regarded by them as the last person to whom an appeal from the architect's good judgment should be necessary.

The recent changes in methods of artificial illumination has introduced a new factor into the problems connected with the design and also the construction of buildings of all classes. That factor is the employment of modern light units in the most effective artistic and economical manner. Effective in securing the maximum of comfort for the light user, artistic in the complete harmonising of all fittings, both during the day and night, with the furniture, decorations, and *ensemble* of the rooms in which they are fixed, economical in the distribution of the light rays at the best angle, and thus utilising them at a moderate cost. The broad questions embraced by this factor of economy are quite properly the concern of the illuminating engineer; part of his business is to improve the design of the various lighting agents by processes of trial and error, until he arrives at satisfactorily commercial models. The burden of this particular task he must share with his confrères, for obviously he will not look for assistance in this work outside the technical boundaries of his profession. But when one turns to the problems presented by the effective and artistic utilities of light, it is at once apparent that the illuminating engineer not only desires the co-operation of the architect, but finds it more and more an absolute necessity to the general acceptance of the principles for which he stands.

The modern but virile profession of illuminating engineering is pressing forward its appeal to the public for saner methods in the use of artificial illuminants. The pioneers of this most interesting movement have practically completed the spade work, and laid the foundations upon which their successors were to build. The task to which these latter are applying themselves is by no means an easy one, by reason of its extent and its complexity. They desire to formulate a plan by means of which light users of all classes can readily understand and assimilate their ideas and intentions. They find that in many respects the movement for which they stand is regarded as a trespass upon the prerogative of the individual who, not unnaturally considers that he is peculiarly entitled to use the lights of his home as he thinks fit, and also to choose what form of fittings pleases him most. The rights of the individual are dangerous things to play with, and no one knows it better than the illuminating engineer. He realises that if his mission for the conversion of the great public is to bear permanent fruit he must have the impress of authority emblazoned upon his escutcheon. He knows that his appeal will be enormously strengthened if he has the sanction of those whose views upon matters of art and culture the public intuitively accept without reserve. He seeks this authority, primarily, at the hands of the architect.

[As may be inferred from the cogeny of this article, our new contemporary has able pens at command.]

SOCIETIES AND INSTITUTIONS.

R.I.B.A. SESSIONAL PAPERS.

The following is a list of papers to be read at the R.I.B.A. during the coming session:—

November 3.—President's Opening Address.

November 17.—The New Wesleyan Hall: Paper by Mr. H. V. Lanchester, F.R.I.B.A.

December 1.—Business Meeting.

December 15.—The Repair of Ancient Buildings: Paper by Mr. W. A. Forsyth, F.R.I.B.A.

January 12.—Business Meeting.

January 26.—London Traffic Problems: Paper by Colonel Sir Herbert Jekyll, K.C.M.G. Announcement of Awards of Prizes and Studentships.

January 27-February 9.—Exhibition of R.I.B.A. Prize Competition Drawings.

February 9.—President's Address to Students; Presentation of Prizes and Studentships.

February 23.—London Railway Stations: Paper by Mr. Paul Waterhouse, F.R.I.B.A.

March 9.—Business Meeting: Election of Royal Gold Medallist.

March 23.—On Borrowing in Architecture: Paper by Mr. L. March Phillipps.

April 6.—Professional Practice and Conduct: Paper by the Practice Standing Committee.

April 20.—London's Bygone Building Acts and the Development of London: Paper by Mr. W. R. Davidge, F.R.I.B.A.

May 4.—Eightieth Annual General Meeting.

May 18.—The London Society and Its Aims: Paper by Mr. T. Raffles Davison, Hon. A.R.I.B.A.

June 8.—Business Meeting.

June 22.—Presentation of the Royal Gold Medal.

MANCHESTER SOCIETY OF ARCHITECTS.

We have received the Kalendar for 1913-14 of the Manchester Society of Architects, which gives all necessary particulars with respect to membership of the society, with lists of the officers and members, and records a twelvemonth's transactions. In the forty-ninth annual report, which is included in the Kalendar, it is shown that the aggregate membership is 281 (a decrease of 2 as compared with the previous year), comprising 118 Fellows, 114 Associates, and 49 students. The President is Mr. John Brooke, F.R.I.B.A.; the Hon. Secretary and Treasurer, Mr. Isaac Taylor, F.R.I.B.A.; and the Secretary, Mr. Arthur S. Brewis, F.C.A., Canada Chambers, 36, Spring Gardens, Manchester. Among the most interesting items in the report is one referring to the practice of some public authorities inviting architects to state their terms in competition. The Council of the Society asked the R.I.B.A. to bring the matter before the President of the Local Government Board, inviting his support in suppressing the practice. Among the lecturers announced for the forthcoming session are: Mr. A. E. Richardson ("The Development of the Theatre"); Mr. Page L. Dickenson ("Dublin Architecture in the Eighteenth Century"); Mr. Lawrence Weaver ("Small Country Houses of Today"); Mr. T. Fyfe ("Some Aspects of Greek Architecture"); Mr. J. Beaumont, jun. ("Roman Architecture"); and Messrs. Arthur Dixon, L. B. Budden, W. G. Newton, Grey Wornum, and J. Harvard Thomas, the sculptor, whose subjects are as yet unannounced.

Appended to the Kalendar is a prospectus of the School of Architecture in connection with the Victoria University of Manchester. Professor A. C. Dickie, M.A., F.S.A., A.R.I.B.A., is director of the school, in which the courses are intended to meet the requirements of students who desire to take a degree of the University either in the faculty of arts or in that of technology, or, alternatively, a certificate in architecture; to prepare for the A.R.I.B.A. examinations, or to attend any of the courses or classes in architecture and building construction without proceeding to a degree or qualification. Among the scholarships for which architectural students are eligible are: A graduate scholarship of £25, which may in exceptional circumstances be increased to £50, offered annually to candidates placed in the first-class of the honours schools in the faculty of arts and showing special merit; a Faulkner Fellowship of the annual value of £100, for the encouragement of study and research, graduates in the honours school of architecture being eligible; six British Institution scholarships, of £50 a year for two years; and fourteen entrance scholarships. The degree and certificate courses each cover three years, and the R.I.B.A. course two years.

SOCIETY OF ARCHITECTS.

Nominations for Officers and Council, 1913-14.

The following is the House List of nominations for officers and council of the Society of Architects. Any other nominations received before October 1st will be incorporated in the ballot paper, which will be distributed early in October. The scrutineers' report will be made at the special general meeting on October 16th. President: Percy B. Tubbs, F.R.I.B.A., London.

Vice-Presidents: R. Goulburn Lovell, A.R.I.B.A., Eastbourne; E. C. P. Monson, F.R.I.B.A., F.S.I., London.

Honorary Secretary: Col. F. S. Leslie, R.E. (ret.), Woolwich.

Honorary Treasurer: Chas. E. Jackson.

Honorary Librarian: Henry Adams, M.Inst.C.E., London.



MR. GILBERT LEDWARD

(Winner of the First Rome Scholarship in Sculpture.)

Past Presidents: George E. Bond, J.P., Rochester; Ed. J. Hamilton, Brighton. Council: P. M. Beaumont, A.M.Inst.C.E., Maldon; James A. Bowden, London; Henry A. Cooper, Kettering; R. Cecil Davies, Chester; Geo. E. Dickens-Lewis, Shrewsbury; Harry Gill, Nottingham; Gilbert A. Harrison, Oxford; R. A. Jack, London; Herbert W. Matthews, London; Wm. H. May, Plymouth; George H. Paine, London; E. J. Partridge, F.S.I., Richmond; J. Herbert Pearson, London; Edwin J. Sadgrove, F.R.I.B.A., London; Chas. E. Salmon, Reigate; A. Alban H. Scott, M.R.San.Inst., London; Noel D. Sheffield, London; Alfred J. Taylor, Bath; B. R. Tucker, M.R.San.Inst., London; Thos. Wallis, London.

THE FORTH BRIDGE TO BE STRENGTHENED.

When the Forth Bridge was designed, more than thirty-one years ago, the loads and the train speeds calculated for were considerably in excess of those then assumed as probable for a long period, but the advance in these respects, particularly in the weight and power of locomotives and the loads behind them, has been enormous. Therefore, although the limits have not yet been reached so far as the strength of the bridge is concerned, the directors of the Forth Bridge Company, says "Engineering," have decided further to anticipate the developments of the locomotive engineer, and to reconstruct part of the flooring and troughs in which the railway track is laid over the bridge. It has been decided at once to proceed with a trial section, to be followed by a reconstruction from end to end of the bridge. The directors have arranged for the carrying out of the work by the original builders, Sir William Arrol and Co., Ltd., Glasgow, and Messrs. Baker and Hutzig will be the engineers, in association with the engineer-in-chief of the North British Railway Company, Mr. W. A. Fraser. It is estimated that 2,500 tons of structural steel will be required for the renewal of troughs and floor from end to end of the bridge; of this total, the addition to the weight of the present steelwork of the bridge is only 750 tons. The work will take some years to execute.

MR. GILBERT LEDWARD.

Mr. Gilbert Ledward, who, as announced in our last issue, has been awarded the First Rome Scholarship in Sculpture, was born at Chelsea in 1888. After receiving a general education at St. Mark's College, Chelsea, he went to Karlsruhe, and on returning to England in 1902, studied art at the Chelsea Polytechnic. From here he proceeded to the Goldsmiths' College, New Cross, where, at the end of his second year, he gained a London County Council art scholarship, with which he entered the modelling school of the Royal College of Art. In his second year he won the Royal College of Art Scholarship, value £60 a year, tenable for three years, which enabled him to complete five years of study with Professor Lanteri. In 1910 he gained the British Institution Scholarship for Sculpture, value £100, and entering the Royal Academy Schools he was awarded the Armitage Prize for Sculpture. Mr. Ledward has practised privately as a sculptor and has also been engaged as modelling master at the Lambeth School of Art.

PROJECTED NEW WORKS.

Proposed Baths at Ipswich.

It is proposed to erect new baths at Ipswich at a cost, including the land, of £5,200.

Church, Hawick.

St. George's United Free Church, Hawick, have decided to erect new church and halls to cost £5,000.

Military Hospital, Dunbar.

A large military hospital is to be erected in Castle Park, Dunbar, for the Cavalry Depôt recently established there.

Hospital, Gloucester.

Gloucester City Council are asking the sanction of the L.G.B. to a loan for the purpose of erecting a permanent tuberculosis hospital.

Harris Academy, Dundee.

The Dundee School Board have decided to extend the Harris Academy at a cost of £24,000. They have purchased two adjacent properties at a cost of £6,000.

Drapery Stores, Kilmarnock.

The Kilmarnock Dean of Guild Court have passed plans for extensions to Messrs. A. Ross and Co.'s (drapers) premises, Portland Street, at a cost of about £4,500.

Perth Academy to be Rebuilt.

Perth School Board have, after a number of years of indecision, decided to rebuild the Perth Academy on the site of the present buildings.

Sewerage, Glasgow.

The Glasgow Corporation propose seeking powers to construct a sludge-main from Dalmarnock to Shieldhall and to increase their borrowing powers under the Sewage Acts by £120,000.

Aluminium Works, Burntisland.

The British Aluminium Company have decided to erect a refinery, works, etc., at a cost of about £200,000, just outside the West Burgh boundaries of Kirkton, Burntisland.

Tenements, Greenock.

The Local Government Board have granted the Greenock Town Council powers to borrow £5,600 to erect tenements on Serpentine Walk under the Housing of the Working Classes Act of 1890.

New Station at Margate.

In deference to the strongly expressed desire of inhabitants and visitors, the South-Eastern and Chatham Railway Company have decided to make an extension of their line in order to open a new station at the Cliftonville end of Margate.

Extensions to Sheffield University.

The Council of Sheffield University have decided to proceed with the extensions of the Arts, Pure Science, and Chemical Departments, which may eventually involve an expenditure of about £50,000. The first portion of the work will cost about £18,000.

Waterworks, Irvine.

Irvine and District Water Board have decided to proceed with the installation of a new service pipe from the reservoir to the filters, and to provide two new filters and increase the capacity of the reservoirs either by raising the level of the waters or by the addition of a third reservoir.

New Bridge Across the Ouse.

It is proposed to build a new bridge across the Ouse at Boothferry, near Goole, at a cost of £45,000, to be borne in equal amounts by the East and West Riding County Councils and the Goole U.D.C.

Bristol Dock Improvements.

A scheme for spending £315,000 on dock improvements has been adopted by the Bristol City Council. The proposal is to erect further cold-storage accommodation at Avonmouth for Colonial produce, and a new granary and other equipment rendered necessary by the growth of the trade of the port.

Bristol Art Gallery Extension.

Bristol Council propose to spend £19,000 on the extension of the City Art Gallery. The Art Gallery, given nine years ago by the late Lord Winterstoke, has become the home of treasures—natural history specimens, pictures, and other works of art—which, with those of the museum, are already valued at upwards of £100,000.

Housing Schemes in North Britain.

Sir George McCrae, Vice-President of the Local Government Board for Scotland, has made an extended tour in Orkney and Shetland, to inquire into the housing conditions and Poor-law administration. It is probable that as a result of these visits town-planning and housing schemes will be adopted by Invergordon, Cromarty, and Lerwick.

Dwellings, Lanark.

The Local Government Board have held an inquiry in the County Buildings, Lanark, in terms of the Public Health and Housing and Town Planning Acts, regarding the Town Council of Lanark's application for consent to acquire two plots or a lease of land on the lands of South Hospitalands, Lanark, for the erection of workmen's dwellings.

New Buildings, Glasgow.

The Glasgow Dean of Guild Court have granted warrants for the erection of five tenement dwelling-houses on the north side of Calder Street by Messrs. James Morrison and Co., property agents, 83, Bowman Street, Glasgow. Also power to erect three villas, with offices, in Old Cathcart Road, Cathcart, by Stephen Mitchell, tobacco manufacturer, Glasgow; to the Corporation, power to erect offices, stores, and a tramcar depôt at Brand Street, Govan; to the trustees of the Clyde Navigation, 16, Robertson Street, to erect electric sub-station, offices and workshops for Meadowside Quay and Granary, and also to erect offices for the granary on the south side of Castlebank Street, Partick.

The Leys School to be Extended.

The Governors of the Leys School, Cambridge, have decided to make an important addition to the buildings of the school. It is proposed to complete the quadrangle by erecting on the open side a fine building, comprising an ornate gateway, which will become the main entrance to the school, with commodious class rooms on either side, while above these, forming the upper floor, will be a lofty library and reading room extending the whole length of the building, which will be surmounted by a turret and clock tower. Sir Aston Webb, R.A., is the architect, and Messrs. George Corderoy and Co. are preparing the quantities and specifications. The foundation stone will be laid on Saturday, October 18, by Lord Moulton of Bank.

NEWS ITEMS.

Discovery of an Egyptian Statue.

The statue of Rameses II., recently unearthed at Armant, in Upper Egypt, is now on view at the Cairo Museum. The statue, which is in granite, is considered to be one of the most perfect effigies of Rameses II. in existence. It dates from B.C. 1250, and in spite of its great age is in excellent condition.

Cheap Cottages at Clitheroe.

Clitheroe Corporation have decided to erect twenty cottages for working people on a plan similar to a house erected at York by Messrs. Rowntree, an illustrated description of which, in this journal evoked considerable discussion. The material used is concrete, and the cost will be about £90 per house.

New Royal Entrance to the Coliseum.

A remarkable piece of constructional work is being carried out at the Coliseum in anticipation of the King's visit. An entirely new entrance to the boxes is being made for His Majesty's use, and to do this the builders have had to cut through four walls on that side of the music-hall which faces Chandos-street.

Housing in Huddersfield.

Of the 500 houses to be erected by the Huddersfield Corporation under the Town Planning Act, plans have already been prepared for 350. All the schemes are prepared on modern lines. There will be not more than twenty-four houses to the acre, and four and five roomed houses are designed to let at 4s. 6d. to 5s. a week exclusive of rates.

By-laws and Building.

Even local by-laws have loopholes. It was stated recently at a meeting of the Cardiff Public Works Committee that anyone could proceed to erect a building directly plans were deposited with the city authorities, and without waiting for the approval of the committee. If, however, the plans were found not to comply with the by-laws the committee could take action.

The Study of London History.

An organisation, to be known as "The Cult of the City Society," has been founded in London for the encouragement of personal knowledge of old churches, monuments, buildings, and historic sites, the study of the traditions of the City, and eventually the compilation of a handbook on the subject. The founder and hon. secretary of the society is Mrs. Hylton Dale.

Bending Cast-iron Pipes.

Owing to an oversight no bends or sleeves were ordered for a cast-iron water pipe-line required by the United Fruit Company near Preston, Cuba, and to avoid the delay that would have been occasioned by the ordering of special pieces, it was decided to try to bend the pipe. For this purpose a cradle of old rails, having the desired curvature, was built, and on this six or eight pipes were placed at a time. A hardwood fire was built around and under the cradle, and after about one to one and a half hours the pipes settled into the cradle by their own weight. The shortest radius employed was 50 ft.

THE CONDITIONS OF BUILDING AND ENGINEERING CONTRACTS.—II.

Being an Explanation of the Clauses of the General Conditions of Specifications and the Legal Decisions affecting them.

SPECIALLY CONTRIBUTED BY E. J. RIMMER, M.Eng., B.Sc., A.M.Inst.C.E., of Lincoln's Inn and the Northern Circuit, Barrister-at-Law, and KENNETH G. THOMAS, B.A., LL.B. (Cantab.).

(Continued from No. 977, page 334.)

Parenthetical numbers in the text refer to cases noted at the end of each section.

5. Form of Contract.

Seal.—In order that a building contract shall be valid and binding upon the parties to it, it is necessary, in certain cases where one of the parties to it is a corporation, that the contract shall be under seal.

Contracts to which both the parties are private individuals ordinarily require no seal, nor do the contracts of an incorporated trading company, if such contracts are made in the ordinary course of its business.

In considering whether a contract to which one party is a corporation is valid and enforceable without seal distinction must be drawn between—

1. Corporations other than those acting as Urban Authorities under the Public Health Act, 1875, and

2. Corporations acting as "Urban Authorities" under the Public Health Act, 1875.

1. In the case of a contract to which one of the parties is a corporation other than an Urban Authority acting under the Public Health Act, 1875, there are several important exceptions to the rule of law that the contract must be made under seal. In the following cases the absence of a seal will be no defence to an action upon the contract:

(i.) Where the contract is small in amount or importance or is in connection with a matter of frequent and necessary occurrence.

(ii.) Where the following three conditions apply:

(a) The work in respect of which the party to the contract other than the corporation seeks to recover is work necessary for the corporation in carrying out the purposes for which it is created.

(b) The orders for the work were given by a regularly constituted body with authority to make contracts in respect of such matters; and

(c) The work done was accepted (5).

This latter exception is a most important one in regard to building contracts. It must be observed that all three conditions must be complied with before the necessity for a seal is dispensed with.

As to (a), the work which it is necessary for a corporation to do to carry out the purposes for which it was created may be said to include all those undertakings which in the interests of the ratepayers it has power to perform. It also includes collateral contracts made in connection with such undertakings—e.g., the engagement of the services of an engineer to prepare a report and plans in regard to a scheme of sewerage.

As to (b), the resolution of a council or committee appointed by it for the purpose (or the instructions of an engineer or architect authorised by such resolution to order work) would, if it is submitted, be required to satisfy this condition.

As to (c), the work must not only be executed but accepted. An executory contract is not within the exception and therefore requires to be made under seal. So a contract to engage a medical officer (or engineer), if not under seal, will give rise to no right of action by the officer against the corpora-

tion for salary in lieu of notice (6). Similarly, the acceptance of a tender, being an executory contract, will not be binding upon either party to the contract unless under seal. It is often a matter of considerable difficulty to decide what amounts to acceptance of work. Most contracts make the final certificate of the engineer or architect a condition precedent to acceptance, but if for any cause the necessity for this certificate is dispensed with, the use of the constructed work, or the taking of the benefit of it by the corporation, will usually amount to an acceptance.

2. In the case of a contract to which one of the parties is an Urban Authority acting under the Public Health Act, 1875, that Act (s. 174, s.s.l.) enacts as follows:

"Every contract made by an Urban Authority* whereof the value or amount exceeds fifty pounds shall be in writing and sealed with the common seal of such authority."

This sub-section is obligatory and applies to executed as well as executory contracts. It is therefore fatal to the claim of any contractor against an Urban Authority acting under the Public Health Act, 1875, in respect of a contract exceeding £50 in value, that the contract under which he executed the work and for which he claims payment was not made under the seal of the Council. This is so even where the Council have taken the benefit of the contract.

This is demonstrated by a case (7) in which the Corporation of Leamington were acting under the powers given by the Public Health Act, 1875, in their capacity of "Urban Authority." Upon one contractor failing to complete the work, the Council authorised their engineer to enter into a contract with the plaintiff contractors to complete the work. The work was completed by the latter contractors and accepted by the Council. In an action arising out of a dispute as to the amount due to the plaintiffs the House of Lords, affirming the decision of the inferior Courts, held that the absence of the seal of the Corporation was an absolute bar to the plaintiffs' claim. Lord Blackburn said: "Here we have to construe and apply an Act of Parliament. . . . It may be said that this is a hard and narrow view of the law, but my answer is that Parliament has thought expedient to require this view to be taken, and it is not for this or any other Court to decline to give effect

* "Urban Authority" must not be confused with "Urban District Council," because although such a Council acts as an Urban Authority, other bodies also may act in that capacity. Under Section 6 of the Public Health Act, 1875, the Urban Authority of a Borough is the "Mayor, Aldermen, and Burgesses acting by the Council," and therefore, if a Borough Council contract in the capacity of an urban authority, the sub-section above will apply. Practically speaking, Urban Authorities are Urban District Councils and the Councils of Boroughs and County Boroughs. Occasionally, however, a Rural District Council may act as an Urban Authority to the extent that it is authorised in that behalf by the Local Government Board. The Public Health Act, 1875, gives, *inter alia*, power to the Urban Authority to construct sewerage works, water works, build hospitals and mortuaries, make public roads and bridges and provide pleasure grounds, markets, and slaughter houses. If in the contract acts under the powers given to an Urban Authority by the Public Health Act, 1875, and not under the power of some special Corporation Act, the contract will come within the sub-section above. This is illustrated in the recent case of *Douglas v. Rhyl U.D.C.* (1913) 29 T.L.R. 605.

to a clearly expressed statute because it may lead to hardship."

[Other cases illustrating this important point are quoted in Nos. 8 and 9.]

It is to be noted that the sub-section does not apply unless at the time of entering into the contract the parties contemplated that the value thereof should exceed £50, and where there is an agreement to supply goods by instalments on order the Court may hold that there is a new contract on the occasion of each order and delivery, though the total value of such goods exceeds £50.

Penalty Clause.—As to the necessity for the inclusion of a penalty clause in building contracts with an "Urban Authority," see *post*, Article V.

Cases referred to in the text:

(1) *Lewis v. Brass* (1877) 3 Q.B.D. 667.—In accepting the tender the architect, on behalf of the building owner, said: "I am instructed by my client to accept your tender of £4,193 for works as above referred to. The contract will be prepared by Messrs. ———, solicitors, and I have no doubt it will be ready for signature in the course of a few days." Held that this was an acceptance which included a binding contract and did not impose any additional terms and that the contract referred to in the letter was merely formal.

(2) *Kingston-upon-Hull Governors v. Petch* (1854) 24 L.J. Ex. 23.—In their advertisement the Governors stated: "All contractors will have to sign a written contract after acceptance of tender." After tender and acceptance the contractor refused to go on with the contract. Held that he was entitled so to refuse on the ground that there was no binding engagement until a written contract had been entered into and signed by the parties.

(3) *Household Fire Insurance Co. v. Grant* (1879), 4 Ex. D. 216.—The defendant applied for shares in the plaintiff company. The company allotted the shares to the defendant and duly addressed to him and posted a letter containing the notice of allotment, but the letter was never delivered to him. Held that the defendant was a shareholder.

(4) *Great Northern Railway Co. v. Witham* (1873) 9 C.P. 16.—The railway company advertised for tenders for the supply of stores for a period of twelve months. The contractors sent in a tender to supply the stores required for the period named "in such quantities of each or any of the several articles named in the attached specification as the company's storekeeper may order from time to time at the price set opposite each article respectively." Several orders for iron were given by the company and from time to time executed, but ultimately the contractor refused to supply more. Held that each order given formed a binding contract which the contractor was bound to fulfil.

(5) *Lawford v. Billericay Rural District Council* (1903) 1 K.B. 772.—The Council engaged an engineer to prepare a report and plans in regard to a scheme of sewerage. In an action brought by the engineer to recover remuneration for his services it was contended that there being

no agreement under the common seal of the Council he could not recover. *Held* that the engineer could recover in spite of the fact that there was no sealed agreement. (The reasons for this judgment are sufficiently set out in the text.)

6. *Dyte v. St. Pancras Guardians* (1872), 27 L.T. 342.—This was an action brought by a medical officer for his salary in lieu of notice. The appointment was not under seal. *Held* that the defendants were not bound by an executory contract not under seal and that the plaintiff could not recover.

(7) *Young v. Corporation of Leamington* (1883), 8 A.C. 517.—The facts are sufficiently set out in the text.

(8) *Hunt v. Wimbledon Local Board* (1878), 4 C.P.D. 48.—This was an action by an architect for payment of plans ordered verbally by the defendants and completely executed by him for them. *Held* that he could not recover because the Public Health Act, 1874, sec. 174, positively required such a contract to be sealed with the common seal of the board.

(9) *Hoare v. Kingsbury Urban District Council* (1912), 2 Ch. 452.—An agreement by which the owner of land agreed to remove his boundary fence and throw a strip of his land into the road in consideration of the Council agreeing to make up and adapt the strip of land as a public road and construct a footpath, was embodied in a written document but not sealed with the Council's seal. The owner carried out his part of the bargain, but the Council did not make the public road and footpath. In an action brought by the owner against the Council it was held that he could not enforce the agreement since it was not under seal as required by the Public Health Act 1875, sec. 174.

(To be continued.)

JAPANESE HOUSE CONSTRUCTION.

A Japanese house seen for the first time from the street by a stranger to the country, writes Mr. W. Osborn Keats, M.S.A., in the October issue of the "Journal of the Society of Architects," is disappointing, the best part of the house usually facing a private garden and only the back being seen from the street; also the woodwork being unpainted gives, to the casual observer, a suggestion of the building being unfinished, and it is not until he becomes better acquainted with things Japanese that the stranger notes the beauties of the unpainted surfaces and the delicate workmanship that has been put into the construction of the building.

Foundations, as we know them in England, are non-existent. The horizontal sills rest upon rough hewn stones which have been pounded into the ground to within six inches or so of their tops. Sometimes the vertical posts rest on these stones, the horizontals being then tenoned into the posts.

The walls of a Japanese house are of wood, or lath and plaster. The framework is not braced, but consists of horizontal and vertical members only. This is due to conservatism in following the old form of construction, and also to the theory that a slight "give" in the structure ensures greater safety against collapse from a severe earthquake shock than one that is rigidly braced. In up-to-date structures framed roof trusses may be seen, but they are not the usual practice.

The houses are mostly of one storey, the floor being raised about a foot and a half above the ground. In a house of the cheaper class the floor may not be more than six inches above the ground.

The openness of the Japanese house is a distinguishing architectural feature of the country, and no foreigner visits Japan without noting this and wondering how the occupants keep themselves warm during the colds of the winter months.

Tatami (mats), shoji (verandah), and karakami (sliding partitions), are of standard sizes. This is due to the custom, still very prevalent, of these articles being tenants' fittings.

The size of a room is denoted by the number of tatami, or mats, required to cover it. Thus the servants' room is known as a six-mat room and the reception-room as an eight-mat room. The usual height for a room is eight feet.

Sewage disposal in a few private cases is by water carriage. The general system of the country is by hand carriage, the material being used for agricultural purposes.

Amado or wooden shutters are used for closing in the verandah or shoji at night or during heavy wind and rain storms. They are formed of $1\frac{1}{2}$ in. by 1 in. square framing filled with $\frac{1}{4}$ -in. boarding. When not in use they slide into a box.

The chudoko is an alcove containing cupboards and shelves and usually adjoins the tokonoma. All materials used in its construction are decorative, this being a feature of the room and forming part of the minute etiquette of the Japanese in the reception of a guest.

Ceilings are of thin wood planks rebated and fixed to allow of ample ventilation. If a plaster ceiling is put in ventilation should be allowed for the escape of the charcoal fumes from the hibachi—a small wooden, metal or earthenware pot in which charcoal is burnt for heating purposes.

Cooking is usually done over a kind of small portable furnace called a shichirin, somewhat similar to a hibachi. Europeans build a small kitchen with a stove when erecting servants' quarters—this stove should be built to take the cooking pots. The usual size pot holds 3 sho of rice and is 11 in. in diameter, the water boiler being 15 in.

A large cupboard is usually formed in each room, excepting the reception-room. These cupboards are principally for the bedding and are usually 6 ft. by 3 ft., and about 6 ft. high, the head piece being level with the shoji head piece. The upper part is usually wood lined so that the bedding does not come in contact with the plaster wall.

A box or some other receptacle is usually provided at the entrance for the geta (wooden clogs), a convenient arrangement being under the floor, with or without doors and seven inches or more high, extending the full width of the entrance.

Steps at the porch and from the garden to the verandah are usually formed of large stones irregular in shape and size.

The porch may be closed with shoji and amado or with grated sliding doors.

In the north it is usual to have an irori (a metal vessel) sunk in the floor of the room, the sinking and boarding being the size of half a mat. In small rooms it is usually placed against the side of the room so as not to take up space required for a bed.

Parakami are the internal sliding partitions dividing one room from another. They have frames of similar section to a shoji, the centres being filled with wall paper or, in superior cases, with canvas. They are of standard size, similar to shoji.

The kitchen has a wood floor, a small portion of its area being at a level eight or nine inches below the rest. This portion is used as a wash-up and here is

placed the wooden trough with outlet and drain, also the water tubs, or tap if water is laid on. Part of the kitchen floor is made to lift up and the space underneath is used as a store.

Japanese roofing tiles are of a dark grey colour and porous when new. On this account they usually have a composition of lead or soot rubbed on them. They are bedded in mud to keep them in place. A new tile is coming into use with a lip at the head. It is hung over a small batten and fixed by a nail or wire. This tile also requires a small amount of bedding material.

In the north the tiles are of a reddish tint and are glazed to prevent their destruction by frost.

The more elaborate the roof the heavier the ridges and hips, formed by more layers of tiles and mud. The finials also increase in size, and some three feet wide may be seen on old houses.

For decorative purposes the overlapping portion of the tile is often coated with white plaster for a distance of three feet down from the ridge and up from the eaves. As the roof becomes older and the tiles loose the whole length of the overlapping portion, from ridge to eaves, is coated in the same manner.

Chinese tiles are used for ridges and hips, and in some districts for roofing purposes. They are then laid concave and the joints covered with tiles laid convex, the joints being pointed.

Shoji are the sliding screens forming some of the outer walls of a house. Sugi and matsu are the usual woods out of which they are made. The standard size is 5 ft. 9 in. by 3 ft., but any size can be made to order. Tatami is a floor mat, the standard size of which is 5 ft. 9½ in. by 2 ft. 11 in., and 2½ in. thick, but they can be made to any size required. A second-class tatami has a medium fine cover of matting and is composed of straw tied with at least twenty-two rows across its width, and is bound with cloth on its two long sides.

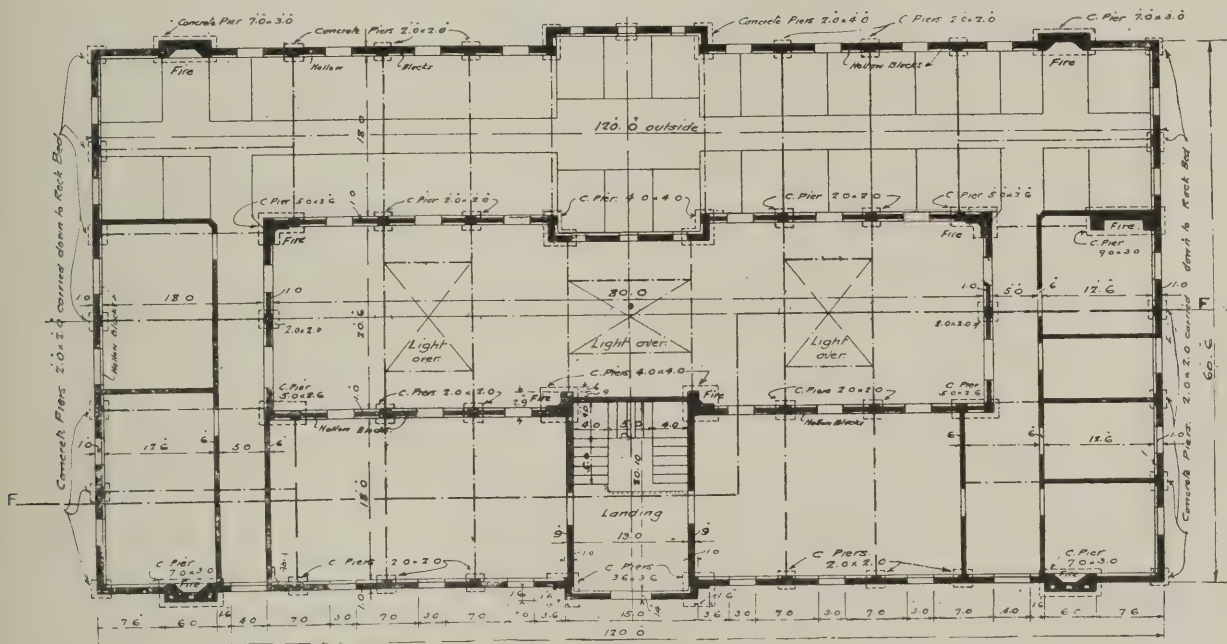
The wood flooring is slightly open for ventilation, otherwise the straw of the tatami rots. A wooden border about 2 in. wide and flush with the surface of the tatami is fixed around the wall as a skirting to prevent the tatami coming in contact with the plaster.

Tokonoma is a recess having a wood floor raised 4 in. to 6 in. above the tatami adjoining the chudoko in the reception room. As this is a decorative feature the woodwork is especially good. The post dividing it from the chudoko is often a branch of a tree from six to nine inches in diameter with the bark stripped and the surface highly polished, showing the knots and other beauties of the wood.

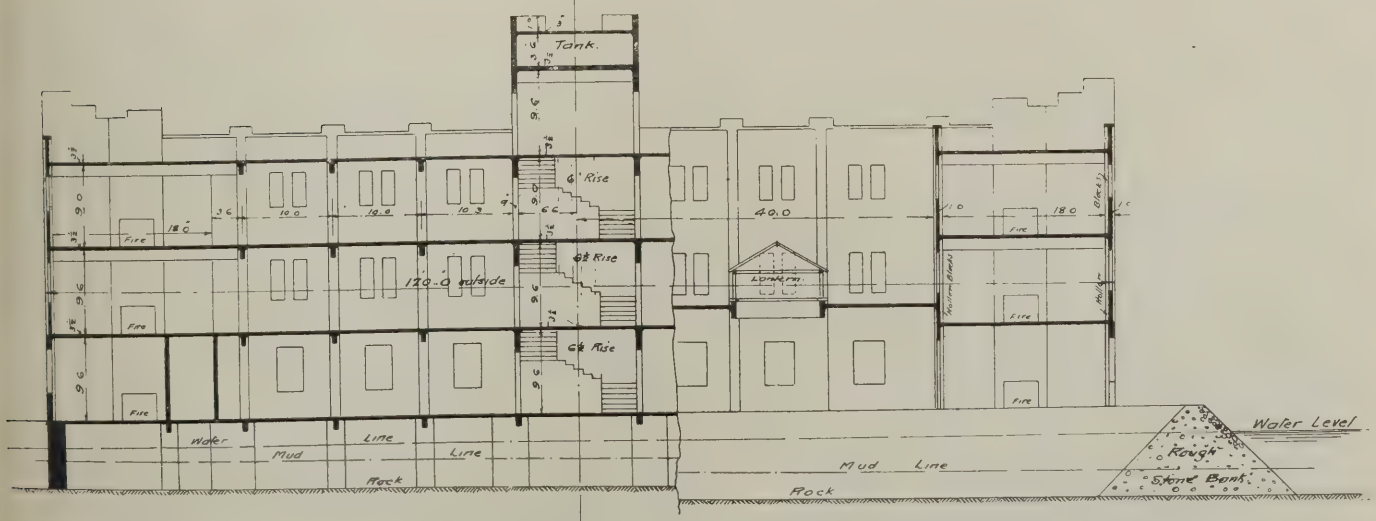
The walls are of lath and plaster. The laths are usually split bamboos of $\frac{1}{2}$ -in. diameter, but sometimes are of $\frac{1}{4}$ in. bamboo, or less, and not split. Mud mixed with chopped straw is plastered on both sides, and the two faces finished with a thin coat of lime plaster, the total thickness being about two inches. The internal plastered walls are usually finished with a sand face, made by mixing sand with paste and trowelling it on the lime face. Good-class plastering for brick or stone walls is made with sand, lime, and hemp and is mixed with hot water in which seaweed has been boiled. This makes a very strong and excellent plaster. The outside walls, where not shoji, are usually horizontally weather boarded, an average size for the boards being 9 in. by $\frac{1}{4}$ in. thick. Rebated vertical strips, $1\frac{1}{4}$ in. by 1 in., and one foot apart, are fixed on the outside and checked for boarding.

The building is carried on concrete piers, varied in size from 4 ft. to 2 ft. square, as was necessary, founded on the sloping rock forming the bed of the lake, which is comparatively shallow at this spot. Stone rubble, from a quarry on the mainland, was deposited around the piers, to act as a solid filling between the bed of the lake and the ground floor; it was extended about 8 ft. beyond the outside walls to form a path round the building and the battered face of the mound was roughly pitched.

was laid over the beams and the stone-filling between them and covered with bituminous material 1 in. in thickness; this damp course was continued to the exterior of the building to prevent damp-rising up the walls, and the 3½-in. concrete



Ground Floor Plan.



WILLIAM A. SCOTT, ARCHITECT.

slab forming the floor decking was laid on it.

The remaining two floors, also carried on concrete beams reinforced with round steel bars and stirrups, are $3\frac{1}{2}$ in. thick and of an average span of 10 ft. The beams are supported by columns, which are also reinforced with round steel bars and hooping, built monolithic with the walls.

The flat roofs are of similar construction, but they are laid to fall for drainage purposes and covered with asphalt. The flooring and roofing slabs throughout are reinforced with No. 6 Rib Mesh Expanded Steel, continuity strips being used where necessary near the top of the concrete over intermediate bearings.

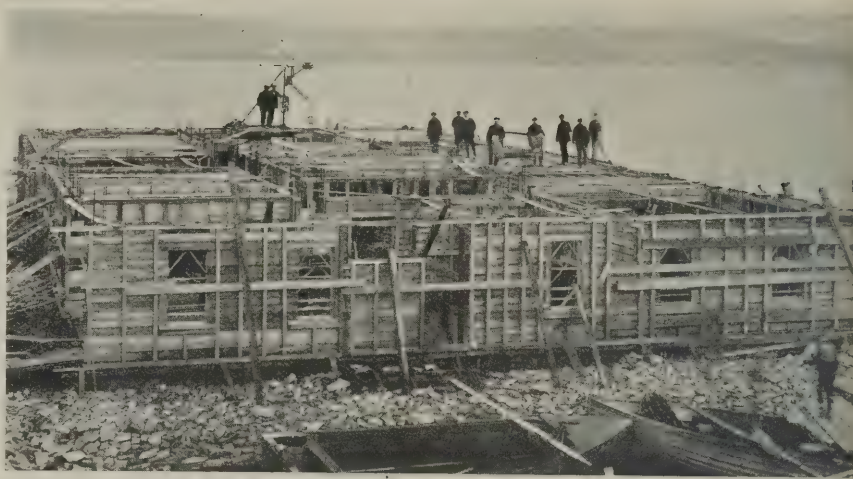
The walls of the building are 7 in. thick up to the first floor level, and 4 in. thick above that level; they were carried up 3 ft. above roof level to form a parapet, and are reinforced throughout with No. 8 Rib Mesh Expanded Steel, the ribs running vertically. The mullions to windows and the lintels to door and other openings are further reinforced by steel bars, which are fanged at their ends to give satisfactory anchorage.

As the building occupies a very exposed position, the exterior walls were lined inside with special machine-made hollow concrete blocks to provide an air space in the walls and to prevent the penetration of moisture. The cast-iron window sashes had special dogs for fixing purposes cast on the frames, and were built into the concrete walls as the work proceeded.

The main central staircase, which leads from the ground floor to the roof, consists of nine flights, 4 ft. wide, formed in concrete reinforced with No. 6 Rib Mesh Expanded Steel; the landings are carried on reinforced concrete cantilevers built monolithic with the walls of the stair well.

Over the whole area of the stair well, and at a level of 10 ft. above the roof, there is a covered fresh water tank 21 ft. by 13 ft. by 3 ft. 6 in. deep. It is of concrete reinforced with No. 6 Rib Mesh Expanded Steel, and is carried on reinforced concrete beams supported on the side walls of the stair well, which were built up above the roof level for the purpose. The tank is provided with suitable W.I. access ladders and manhole and inlet, outlet, overflow and wash-out pipes.

The fire-places on the various floors are monolithic with the adjacent walls; the flues consist of 10-in. diameter fireclay



HOSTEL, LOUGH DERG: VIEW OF SHUTTERING ON SITE.

pipes, which were built into the solid concrete as the work proceeded.

The building was constructed for the Very Rev. Canon Keon, P.P., Enniskillen, to the plans and specification and under the supervision of Mr. Wm. A. Scott, Architect, Mountjoy Square, Dublin; Messrs. Wm. Connolly and Son, 37-39, Upper Dominick Street, Dublin, were the general contractors for the work; while The Expanded Metal Company, Limited, of London and West Hartlepool, designed the reinforced concrete details and supplied the whole of the reinforcement.

HANDLING CEMENT IN BULK.

Within the last year considerable mention has been made of what appears to be a new method of shipping Portland cement; that is, in bulk. In reality considerable cement was transported in this condition as far back as 1886. Since many of the costs on various construction works are necessarily similar, due to labour conditions, equipment, etc., the problem of efficient handling of materials is a serious one, and worthy of careful consideration when close estimates are to be made.

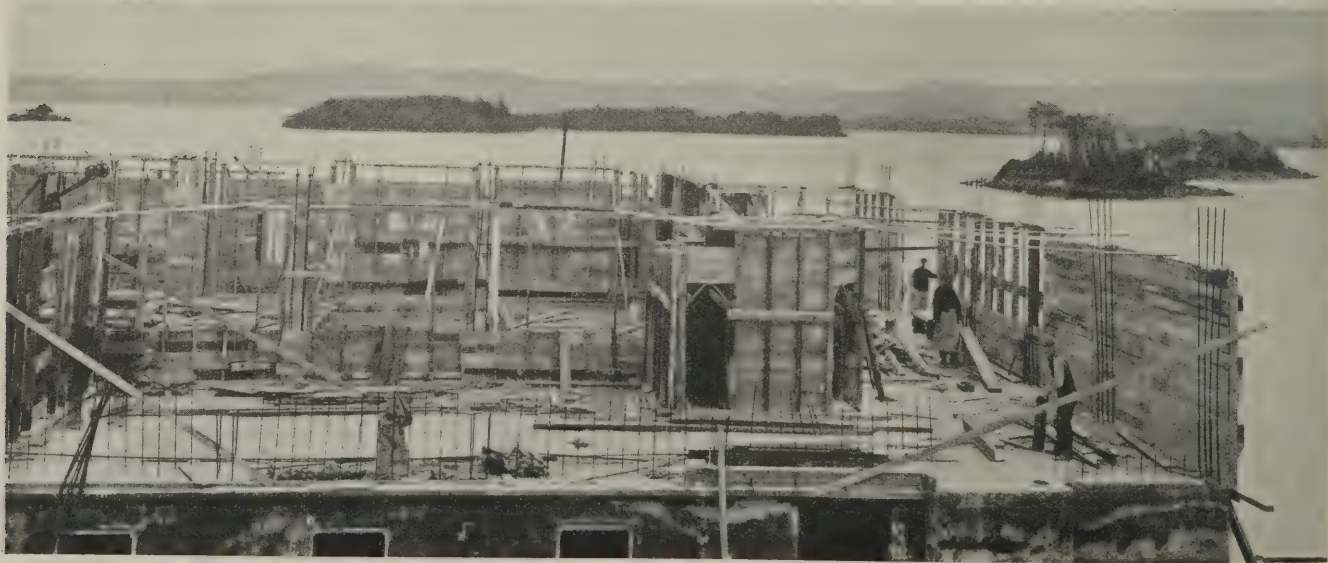
With the thought of investigating actual work with bulk cement, a time study was made of the various operations of a gang, using first sacked cement and afterward cement in bulk. The work under observa-

tion was that of the Chicago, Milwaukee and St. Paul Railway on its retaining-wall construction at Bloomingdale Road and Robey Street, Chicago.

The arrangement of the mixing equipment, utilising a $\frac{1}{2}$ -yd. mixer, a vertical hoist, and an open spout for discharging into the forms, the material cars and mixer being run in between the wall forms on a single track in the following order—cement car, mixer car, gravel and sand flat cars—is identical whether using sacks or bulk, except in loading the wheelbarrows with cement, dumping cement, and emptying cement into the mixer.

The length of cement haul was 120 ft., and the load was two bags or 2 cu. ft. of cement. The net time of loading two bags on a wheel-barrow was 0.4 minute, while the time of filling the barrow with bulk cement was 0.9 minute, net; but this difference was largely offset by the delay occasioned in unloading sacks and picking up the empties, which brought this figure from 0.4 up to 0.7.

Since these figures do not take into account the lost time or time of transportation from the car to the mixer, the comparison of 0.7 minute for sacks as against 0.9 minute for bulk is somewhat misleading. When these other items are considered, the difference between the two practically vanishes, so that the labour in handling is nearly identical, without figuring, of course, the time of the man at the mixer



REINFORCED CONCRETE HOSTEL, LOUGH DERG, Co. DONEGAL, IRELAND.

necessary to help unload and untie sacks and feed cement to the mixer. Taking this man's time at 42.5 cents an hour [under usual conditions a much lower rate is paid for such labour] for an eight-hour day, the extra cost is \$3.40, which, when figured against an output of 125 cu. yd. to the day, makes the cost per cubic yard 2.72 cents greater because of handling cement in sacks. To this we should add the average loss from unreturned sacks of 6 cents per barrel, or 7.43 cents per cubic yard of 1:2½:5 concrete in addition to the cost of counting, tying into bundles and shipping the sacks back to the mill. On the particular job under observation the counting and the bundling are first done on the job, but on account of the inaccuracy of the workmen the bundles must again be checked and inspected before being returned to the mill, which brings the cost still higher, to about 1 cent per barrel, or 1.24 cents per cubic yard of 1:2½:5 concrete. The basis for this assumption is taken from another construction job where the entire time of one man is utilised in shaking and bundling about 1,600 sacks per eight-hour day, so that this figure of 1 cent per barrel and 1.24 cents per cubic yard is a very conservative estimate.

Totalling these different items: 2.72 cents, 7.43 cents, 1.24 cents = 11.39 cents.

Take, for example, the cost data of Messrs. Taylor and Thompson, in their book, "Concrete Costs," for a two-bag batch mixer with the concrete discharged into the hopper and a two-wheeled hand cart at 60 cents per cubic yard of concrete, with labour at 20 cents per hour. Calculating the labour cost at 42.5 cents per hour brings the cost up to \$1.28 per cubic yard. With the improved methods of handling concrete, however, which the Chicago and Milwaukee Railway is employing, this figure is probably high, but for the purposes of illustration it will be assumed to be correct. This would indicate that the saving per cubic yard of 11.39 cents against \$1.28 is nearly 9 per cent. of the total cost of placing the concrete—really an item worth while considering. Take, for instance, the construction of the Keokuk dam, which required over 650,000 cu. yd. of concrete. Assuming that a saving of 11.4 cents per cubic yard could have been accomplished by the use of bulk cement, the cost of this construction could have been reduced \$74,100.

There seems to the writer, Mr. J. H. Libberton, of the Universal Portland Cement Company, to be no good reason why cement should not be handled in identically the same manner as sand or gravel, and instead of providing only two large hoppers, three are equally practicable, the third, of course, to contain the cement in bulk.

The feasibility of this method of handling cement has impressed manufacturers of conveying machinery, and the suggestion at present is to handle the cement from the car in the same manner as grain or coal is manipulated, by means of a drag with steel rope and windlass carrying the cement out of the car door and into a hopper leading to a vertical elevator. Equipment of this kind could be self-contained, portable and adaptable to almost any kind of construction. It has been calculated that with such an apparatus one man could unload a car of bulk cement in at least fifteen to thirty minutes, since the same thing is now being accomplished in unloading grain from cars in about three to five minutes. With this method of handling the unloading of cement in bulk would be a very simple and economical matter.

CEMENT TRADE PROSPECTS.

Lord St. Davids, presiding last week at Winchester House over the ordinary general meeting of the Associated Portland Cement Manufacturers, 1900, Ltd., observed that the present price of cement was no higher than it should be if a fair margin of profit was to be maintained. As to the cost of manufacture, he feared that in the future they must look rather for an increase than a decrease in that respect. Still, they could look upon the position of the company in Great Britain as very satisfactory, and they ought to do quite as well during the current year as they had done in the past one. Reference was made by him at the last meeting to the interest which they had taken in Canada, and he regretted to say that at the moment trade in Canada was distinctly dull, and he believed that the Dominion was being affected by the general financial stringency existing throughout the world. When Canadian municipalities found it difficult to raise capital they could not expend more money upon building improvements, and therefore the cement trade in the country suffered. He was, however, quite sanguine as to the future of their interests there. He believed that it would be found that the Canadian interest was one of the best eggs in their basket. As to Mexico, despite the civil war that had been taking place there, he could give a very gratifying statement as to their progress in that country, and that interest should prove also to be a very valuable one. Then, too, they had taken an interest in some cement works in South Africa. The works there were not yet in an advanced stage, so that it would be some time before they would benefit in that direction. He spoke with great satisfaction of their interest in the British Portland Cement Company, and said that the profits they would derive from that would materially add to their income during the current year. It was the opinion of the board, in the interests of the company at home and abroad, that they would be justified in twelve months' time in coming before the shareholders with a proposal for the payment of a larger Ordinary dividend than they recommended on that occasion, viz., 5½ per cent. on the Preference and 5 per cent. upon the Ordinary shares. Speaking of the more distant future, he remarked that there would no doubt be fluctuations in their profits, and in some years better and in others worse balance-sheets than the present one, but, taking a long look ahead, he had every confidence that the future of their undertaking would prove to be more advantageous to the shareholders than was the case to-day.

A MODERN BUILDING WORKS.

On Saturday, Sept. 27th, the Builders' Foremen's and Clerks of Works' Association visited the Crown Works of Messrs. Higgs and Hill, Ltd., at Vauxhall. The party made a thorough examination of the works and were subsequently entertained to tea. Crown Works were started in the year 1867 by Mr. Higgs, who, in 1874, amalgamated with Messrs. Hill and Sons, who were then in business at Islington. Covering an area of more than three acres extent, Crown Works are fully equipped with the most modern machinery and apparatus necessary for dealing rapidly and efficiently with large quantities of material. The party first visited the engineers' shop, where various pieces of machinery were seen at work, including a radial drilling

machine, and a demonstration was given of cutting and welding by oxy-acetylene.

In the masonry shop were many huge blocks of stone, finished, and in process of cutting. A moulding machine was at work on a large section of cornice, and attracted much attention. This machine is capable of working stone 11 ft. by 7 ft. 6 in. wide by 4 ft. 6 in. thick. In the yard there are two electric travellers, capable of lifting the largest blocks of stone obtainable.

Perhaps the most interesting piece of machinery in the whole works is a diamond saw for cutting stone; the blade is 8 ft. diameter and has 172 diamonds set round its periphery. Its speed is 410 R.P.M., and it is capable of cutting stone 3 ft. thick at the rate of eight inches per minute.

Attention was drawn in the plasterers' shop to the firm's "stuc," a close imitation of stone, used extensively for inside wall surfaces, also the manufacture of coke breeze fire-resisting partition slabs.

The timber sheds, which were next inspected, contain a very large stock of deals and hardwood, each pile being dated to ensure the woods being dry before use.

Passing through the splendidly equipped cabinet and joiners' mills, the party proceeded to the joiners' shop, in which a good deal of work was in course of execution, including fittings for the Office of Works and the Admiralty. It will be seen, therefore, that Messrs. Higgs and Hill are prepared to undertake a very wide range of work.

LONDON LABOUR TROUBLES ENDED.

Painters' Strike Settled.

Representatives of the London Trades Management Committee and the National Amalgamated Society of House and Ship Painters and Decorators met on September 30th with representatives of the Master Decorators' Association at the Board of Trade, with Mr. B. Francis Williams, K.C., as arbitrator on a code of rules. The London Master Builders' Association and the Painters' Federation also applied to be heard, but the arbitrator ruled that as they were not parties to the dispute he could not hear them. Mr. Williams will report in due course on the rules. The penny an hour originally conceded by the masters is to be inserted in the new code. The men also win recognition of the union and the code of working rules. This increase in wages is the first they have had since the concession of a halfpenny an hour twenty-one years ago.

Labourers' Strike Averted.

A conference between the Master Builders' Association and the United Builders' Labourers' Union, held at Koh-i-Noor House, Kingsway, ended in a settlement, by which a strike is averted. The masters had promised ½d. per hour increase in wages, to take effect in six months' time, but the men urged that the increase should begin in the third week in October. The men also asked that overtime should begin at 5 p.m. on week-days and at noon on Saturdays. At the end of the conference it was intimated that the masters were prepared to make a concession on the latter point and to pay time-and-a-half for overtime between noon and 4 p.m. on Saturdays. At a subsequent conference of the Executive Council and the members and secretaries of the London branch of the United Builders' Labourers' Union, it was agreed to accept the terms offered by the Master Builders' Association, and instructions were given to the delegates to sign the code of rules.

COMPETITIONS.

New Senate House for Hayti.

The Haytian Department of Public Works is reported to have announced a competition for designs for a Senate House at Port-au-Prince. The cost is not to exceed \$100,000 (about £20,500). The architect of the first premiated design will receive the commission, and two other premiums, \$300 (about £61) and \$200 (about £41), respectively, will be awarded. Designs are to be sent by November 3rd to the Département des Travaux Publics, Port-au-Prince.

COMPETITIONS OPEN.

OCTOBER 31. — TOWN PLANNING SCHEME, YORK.—Premiums of £100, £50, and £25 are offered for a town-planning scheme for certain areas in and near York. Particulars, F. W. Spurr, City Engineer, Guildhall, York.

NOVEMBER 1. — ROYAL PALACE AND LAW COURTS, SOFIA.—Particulars, Commercial Intelligence Branch, Board of Trade, Basinghall Street, E.C.

NOVEMBER 20. — BAND PAVILION, FOLKESTONE.—Folkestone Corporation invite designs for a band pavilion to be erected on the face of the West Cliff, at a cost, including approaches, not exceeding £20,000. Mr. Edwin T. Hall, F.R.I.B.A., will act as assessor. Intending competitors should forward deposit of £1 is. to A. F. Kidson, Town Clerk, Town Clerk's Office, Folkestone, when conditions will be sent.

JANUARY 2. — ROYAL EXCHANGE, MANCHESTER.—The Board of Directors of the Manchester Royal Exchange, Ltd., invite designs for additional new buildings and alterations on the existing Exchange buildings. Mr. James S. Gibson, F.R.I.B.A., will act as assessor. Particulars, instructions, and plans will be forwarded on application to Richard J. Allen, Master, the Manchester Royal Exchange, Ltd., Manchester, accompanied by a cheque for £2 2s.

JANUARY 2. — GOVERNMENT BUILDINGS, OTTAWA, ONTARIO.—Architects are invited to submit sketch designs in a preliminary competition for the erection of departmental and courts buildings from the designs submitted. Six will be chosen by the assessors, the authors of which will be invited to take part in a final competition, for which the five unsuccessful competitors shall each receive an honorarium of \$3,000. The competition is limited to British subjects practising in the British Empire. Mr. T. E. Collcutt, Mr. J. H. G. Russell, and Mr. J. O. Marchand will act as assessors. Conditions for both competitions may be had on application to R. C. Desrochers, Secretary, Department of Public Works, Ottawa, and at the office of the High Commissioner for Canada, 17, Victoria Street, London. (Summary of conditions, p. 326 in our issue of September 24th.)

FEBRUARY 15. — SAVINGS BANK, VERONA.—The Savings Bank of the City of Verona invite designs for a new building to be erected on an area bounded by the Piazza delle Erbe, Via Camera di Commercio, Via Portici, and Via Mazzini. Premiums: (1st) Lire 30,000 (about £1,200) and (2nd) Lire 15,000 (about £600). The President of the Savings Bank and four others, to be appointed by the Council of Administration, will act as assessors. Applications to be addressed to the seat of the Institution, Via Garibaldi No. 1. (Site plan and summary of conditions, p. 221 of our issue for August 27th.)

NO DATE. — NEW OFFICES FOR THE BOARD OF TRADE, ETC., LONDON.—The Commissioners of H.M. Works and Public Buildings invite preliminary sketch designs in competition for new offices for the Board of Trade, etc., to be erected on a site in Whitehall Gardens, London, S.W. From sketch designs submitted the authors of not more than ten designs will be selected to submit designs in a final competition at an honorarium of £300 each. The assessors are Mr. Reginald Blomfield, M.A. (Oxon.), A.R.A., P.R.I.B.A., Mr. John Belcher, R.A., and Sir Aston Webb, C.V.O., C.B., R.A. Conditions of the competition, which is open to all British subjects, with full particulars of the accommodation required and plan of site, can be obtained on application to the Secretary, H.M. Office of Works, etc., Storey's Gate, London, S.W., and deposit of £1 is. (Site plan and summary in our issue of September 3rd.)

NO DATE. — WORKMEN'S COTTAGES, SKELMANTHORPE.—Skelmanthorpe Urban District Council invite competitive designs for twelve workmen's cottages, to be built by the Council. Particulars, Clerk, Wilson Fisher, Skelmanthorpe, near Huddersfield.

THE BASTIONS OF LONDON WALL.

In a lecture on "The Bastions, or Wall Towers of London," given before the British Archaeological Association last week, Mr. Francis W. Reader pointed out that the bastions, or wall towers, were placed at intervals on the outside face of the walls so as to command the length of the wall separating them. They exhibited the method of mural foundation known to the Romans, but not used by them in the early occupation of this country. The bastions formed no part of the original defences, as they were of different construction, varied considerably in size, and had no bonding courses. That the bastions were later additions to the wall was clear from the masonry, and also because they were built against the wall and not bonded into it. Some of the bastions were solid, others were hollow and filled with earth. No reference was made to them by Roman writers, and the first definite description of them was that of FitzStephen in the Twelfth Century. The position of twenty bastions had now been ascertained, and probably more remained undiscovered. He thought that one might some day be found in Wormwood Street. One of the best known bastions was that discovered in Camomile Street in 1876. There was no evidence of a bastion near All Hallows' Church, but the shape of the vestry erected by Dance suggested that one had been used by him as the base of that building. The middle bastion on the site of Christ's Hospital went down to a great depth because the soil was once part of the bed of a stream. The angle bastion on the site of the new Post Office was built of odd stones, for there were very few buildings in that part of London; indeed, he considered that it was probably open ground there during the whole of the Roman occupation. There was only one possible alternative to the theory of the Roman origin of bastions, and that was that they were built by the Saxons, who found a convenient quarry in the Roman buildings that were left, but he (the speaker) thought there was no warrant for believing that the Saxons had anything to do with their erection.

OBITUARY.

Sir Alfred East, R.A.

Sir Alfred East, R.A., who died on September 28th, at his residence in Belsize Park, London, N.W., after an illness of several months, had reached the age of sixty-four, having been born on December 15th, 1849, at Kettering. He began life in a Glasgow counting house, but, coming into contact with some artists of that city, he determined to be an artist himself. He studied in the Government School of Art in Glasgow and attended the night class conducted by Mr. Greenlees. Then he went to Paris, where he received further training at the Ecole des Beaux-Arts under Tony Robert Fleury and W. Bouguereau. East had been a constant exhibitor in London, the provinces, and Paris since 1883, in which year three of his works were hung at the Royal Academy. One of these, "A Dewy Morn," was painted at Barbizon, for he fell early under the influence of the Barbizon school, and especially of Corot, an influence to which his art was subject for the rest of his life. He was for many years an exhibitor at the Paris Salon, obtaining a *mention honorable* at the Exposition Universelle of 1889, and a gold medal at the Exhibition of 1900. He ceased to exhibit at the Old Salon (Société des Artistes Français), and in 1905 became a member of the rival society, the Société Nationale des Beaux-Arts. He was elected A.R.A. in 1899, and to full membership last July. A long visit which he paid to Japan considerably influenced his art. In June, 1906, he was elected President of the Royal Society of British Artists in succession to the late Sir Wyke Bayliss (who had succeeded Whistler in 1889). In 1901 he was knighted. In addition he was an honorary A.R.I.B.A. and LL.D. In 1911 he presented to the Kettering Urban District Council a collection of his pictures to be placed in an art gallery in that town.

Mr. J. D. Webster, F.R.I.B.A.

Mr. John Dodsley Webster, who died on October 1st, was head of the firm of Messrs. J. D. Webster and Sons, architects, of St. James Street, Sheffield; and was York Diocesan Surveyor. He was elected F.R.I.B.A. in 1873, and had been for several years chairman of the board of the Sheffield Children's Hospital, of which he was the last surviving founder.

Mr. John Grover.

The death occurred at Hindhead, on September 30th, of Mr. John Grover, head of the firm of John Grover and Son, Wilton Works, Islington. Mr. Grover was 78 years of age. Among the buildings which his firm erected in London are New Scotland Yard and factories for Messrs. Siemens, in Woolwich. Mr. Grover had resided many years at Hindhead, where he built, at his own cost, three Congregational churches.

Dr. Jules Ogier.

Dr. Jules Ogier, the toxicologist, who died in France last week at the age of sixty, had worked with Berthelot and was director of toxicology at the Prefecture of Police, where his work was of the greatest value to justice. He planned most of the large water systems in France, and his labours in connection with the purification of drinking water have been of great service to public health. He was in a way the creator of modern toxicological chemistry, and his many works include a treatise which has become a classic on that branch of science.

TRADE AND CRAFT.

"Leadglass" Watertight Puttyless Glazing.

To get rid of the perishable element of putty in glazing is to effect a considerable economy by ensuring greater durability and superior convenience. Moreover, the confidence and satisfaction that always arise from the knowledge that a difficult problem has been solved with scientific neatness are present in full force in the contemplation of puttyless glazing. Neat in appearance and simple in its application, as well as effectual in its results, is the system known as "Leadglass" (Gregory's patent), for which the sole licensees and manufacturers are Messrs. Young and Marten, Ltd., Caledonian Works, Stratford, London, E. It can be employed vertically as well as on planes running or sloping more or less horizontally, and the system admits of modification to meet various conditions. For light work, single lead strips may be used, while double strips may be employed for the complete protection of the woodwork of glazed roofs; and either one pane or several can be used to an opening. Either screws or copper tacks may be used for fixing the lead to the woodwork. From illustrations that have appeared in our advertisement pages it is evident that the system is sound, simple, and ingenious.

A New Building Material.

About the middle of 1890 a beginning was made in the construction of floors of wood-stone composition, and since then this manufacture has developed into a thriving industry in Germany. The essential constituent of wood-stone composition is magnesia-cement, which was discovered in 1867 by the French chemist Sorel. It is a combination of magnesite and magnesium chloride. The magnesite contains, after burning, about 90 per cent. of oxide of magnesia, and is obtained chiefly from Eubœa, the largest island in Greece; the magnesium, being a by-product in the preparation of alkali salts, is plentiful and cheap, whereas magnesite is comparatively expensive. The two materials in combination form magnesia-cement, which, when properly prepared, has the property of binding together in a solid mass such materials as may be mixed with it, even if these form 90 per cent. of the whole mixture. The filling material employed is quarry-dust, or slag, or "wood-meal," according as a stone-like or wood-like material is required, the former giving a product which is relatively harder, denser, and has higher heat-conductivity than the latter. The former mixture is therefore more appropriate for a floor that is to be left uncovered, the latter for one that is to take a covering of linoleum. In dwellings, shops, and offices, and even in some factories, the linoleum-covered jointless composition floor is rapidly becoming the favourite form.

So far, merely the constituents of wood-composition floors have been dealt with. Realising that the materials used could be easily misapplied or used in wrong proportions, to the undeserved detriment of the system, Herr Hengerer, developing further the idea of preparing the material under skilled supervision in factories, caused the slabs or plates of composition to be reinforced with wood inlays, just as concrete is reinforced with iron. He patented this process and called the product Tekton. Two different forms of Tekton are now being manufactured—namely, Tekton plates and Tekton deals

or planks. The former have an area of about a foot square, with a thickness of about seven-tenths of an inch; the latter are of the common length of planks and are about 16 in. broad and from 1 in. to 1¼ in. thick. They are nailed upon wooden joisting and a layer of felt may be placed between the boards and the joists by way of deafening.

The Tekton boards are grooved on the underside to facilitate ventilation of the joisting, so that, even should the latter be damp at the time of covering it soon dries and dry-rot is prevented. The plates or deals having been laid, a thin layer of about three-eighths of an inch of magnesia-cement is spread over them. This serves to bind together the Tekton plates or boards into a monolithic mass, forming a jointless floor. This top layer dries very quickly, so that the linoleum may be laid and the room be ready for use within twenty-four to thirty hours. The Tekton plates may be bedded in sand, through which gas and water-pipes may be run.

The use of Tekton, however, is not confined to flooring. It is applicable to the covering of roofs and walls, and even to the complete construction of buildings. The proprietors anticipate that the material will play an important part in the construction of sanatoria under the National Health Insurance Act, as it has been used extensively on the Continent for hospitals, schools, barracks, as well as for buildings of many other kinds. It is in particular request for the construction of air-ship sheds or hangars; the German Government and the Zeppelin Airship Company having entered upon a five years' contract for all their hangars to be constructed of Tekton. Messrs. Ollendorff and Clarkson, Ltd., 163, Hope Street, Glasgow, are the agents.

REINFORCED CONCRETE SPECIALISTS' SPORTS.

The first annual sports meeting organised by the combined staffs of the Trussed Concrete Steel Co., Ltd., the Expanded Metal Co., Ltd., and the Indented Bar Co., Ltd., was held on Saturday last at the West London Cricket Ground, St. Quintin Park. The weather was delightful and a large and enthusiastic crowd closely followed the entertaining programme of events provided.

Large entries were received for all the races, and although the men started from scratch in every case many close and exciting finishes were witnessed.

Brief details of the final heats are appended:—

100 Yards Flat Race.—E. Langstreth, 1; C. J. Pell, 2; J. L. Kerry, 3.

80 Yards Stilt Race.—J. M. Dunford, 1; W. H. Butland, 2.

Wheelbarrow Race.—J. L. E. Harrison and G. A. Couper, 1; R. Pepper and P. R. Dunkley, 2.

220 Yards Flat.—C. J. Pell, 1; J. L. Kerry, 2; J. Muir, 3.

High Jump.—M. Jespersen, 4 ft. 10 in., 1; J. H. Godfrey, 4 ft. 8 in., 2.

Four-Legged Race.—J. L. E. Harrison, G. A. Couper, and H. Haughton, 1.

Throwing Cricket Ball.—G. A. Couper, 110 yards, 1; E. Langstreth, 106 yards, 2.

One Mile Walk.—R. Stubbs, 1; W. H. Butland, 2; J. M. Dunford, 3.

Cigarette Race with Ladies.—H. G. W. Hart, 1.

Half-Mile Relay Race.—Truscons (J. Muir, H. G. W. Hart, J. L. Kerry, and C. J. Pell), 1.

Sack Race.—E. Langstreth, 1.

One Mile Flat.—H. G. W. Hart, 1; J. Linnett, 2; J. H. Godfrey, 3.

Veterans' Race.—F. Purton (Manager Expanded Metal Co.), 1; A. Van Osenbruggen, 2.

440 Yards Flat.—H. G. W. Hart, 1; G. A. Clark, 2; J. C. Brooke, 3.

Tug of War.—Indens, 1.

At the conclusion of the sports the prizes were presented by Mrs. Moritz Kahn, who in a graceful speech complimented the successful competitors upon their prowess and predicted an even more popular and successful gathering in future years.

A concert and dance provided an appropriate ending to a most satisfactory and enjoyable day.

LONDON AND LIVERPOOL LABOUR DISPUTES SETTLED.

The settlement of the disputes with the painters and labourers is recorded on page 361. The award of the arbitrator (received subsequently) includes the following details:—

Working hours in the summer to be 50 for 35 weeks, and 44 hours for 17 weeks of winter.

Rate of wages to be 9½d. to 10d. per hour, this representing a penny advance in each case.

Overtime until 8 p.m. to be paid at time and a quarter, from 8 p.m. to 10 p.m. time and a half; after 10 double time. From 12 noon on Saturdays until 4 o'clock time and a half; after 4 double time. Sundays and Christmas Day double time.

Men in night gangs to be paid 2d. per hour over ordinary day rates, shifts not to exceed nine hours without overtime rate. From Saturday midnight to Sunday midnight double time.

Provision for country expenses to be at the rate of 6s. 6d. per week. Time worked to be two hours in excess of London time. The London district to be 12 miles radius from Charing Cross.

The rules were to come into operation last Monday and may be terminated or altered after six months' notice on either side.

Liverpool Demarcation Dispute.

A settlement of the demarcation dispute in Liverpool was arrived at last week on the following lines:—

(a) Both sets of operatives—bricklayers and plasterers—have agreed to submit the question in dispute to arbitration. (b) The Board of Trade to appoint the arbitrator. (c) The arbitration to take place at the Master Builders' offices on Friday of last week. (d) The operative bricklayers to return to work on all jobs on Monday morning, October 6th, providing the undertaking given by this Association to the operative bricklayers be strictly carried out, viz., that no rough concrete blocks for partition work be fixed pending the decision of the arbitrator.

The trouble arose some months ago concerning the question of whether bricklayers or plasterers should be allowed to "set" concrete slabs for the inner walls of the new Midland Adelphi Hotel. The bricklayers contended that it was their work, but their claim was disputed by the plasterers. As the masters, for the time being at any rate, shared the view of the plasterers, the bricklayers "downed tools."

The Employers' Federation thereupon issued an ultimatum that unless the men returned to work on the Adelphi job by a certain date there would be a general lock-out of bricklayers. The bricklayers declined to resume and were locked out at the end of July.

MOTOR NOTES FOR BUILDERS AND CONTRACTORS.

[Specially Contributed.]

Special Accessories Needed for Commercial Vehicles.

A truck, just like any other piece of mechanism, is no stronger than its weakest part. Like the "wonderful one-horse shay," which (all parts being equally well built) finally gave way in all parts at the same time, the truck, if properly constructed, would last almost indefinitely up to the time of its disintegration. This is the aim of the commercial car manufacturer, and the goal toward which he has been working.

The mechanism is now complete in all its details, and so well constructed by many of the truck makers that it all but approaches the one-horse shay in perfection. Unfortunately, however, there are a large number of parts which go to make up or adorn the truck as a whole which are not made by the car manufacturer. I refer particularly to the very numerous and necessary accessories. I said these go to make up or adorn the truck itself. "Adorn" seems to be the idea of a large number of accessory makers, and that is about all the use some of their devices are when placed on a truck. These various accessories are made of polished brass, very lightly constructed, and, indeed, in fact designed solely for use on pneumatic-tyred pleasure cars, upon which they doubtless will give satisfactory service. From their construction they were evidently never intended to be used on solid-tyred vehicles, and if there is any doubt about this, their behaviour when used in such service at once settles the matter, for they almost invariably shake to pieces, drop on the road, and are run over, and very quickly find their way to the city dump.

Is it not time for the accessory maker (and we speak of these manufacturers as a class, for there are notable individual exceptions) to manufacture something really suitable for use on the highly specialised solid-tyred motor-driven commercial car?

Lamps, horns, speedometers, gauges, clocks, and, in fact, every accessory, should be made of heavier gauge material, riveted, welded, or brazed, rather than soldered, and so made that they will stand the terrible punishment that every device is subjected to when used on a heavily-loaded machine on solid tyres, negotiating cobblestone pavement and car tracks. It is possible to build all these devices so that they will last at least for a time commensurate with the purchase price.

These devices should be finished in gun-barrel blues, blacks, or enamels, to correspond with the adjacent portions of the machine. Polished brass has no real place on such accessories on a commercial car. The drivers have enough to do (and the same is true of the mechanics and others who look after the cars at night) without adding to their burdens the trouble of polishing a lot of unnecessary brasswork.

There are a few makers now supplying accessories of special design, suited particularly to truck service, and these makers are to be commended upon their foresight and progressiveness. I trust in the near future the other makers will realise that most devices made essentially for touring cars will not give so satisfactory service on heavy trucks.

Recording Devices—Their Use and Abuse.

We are continually hearing complaints from the tyre makers that the users are abusing their guarantees, and from the

users that the tyres do not give the service expected of them; from the truck salesmen, that the user does not know the cost of operating his own machines; and from the user, that the drivers are careless, inefficient, and unnecessarily abuse the trucks. Yet none of the parties concerned apparently have sufficient insight to see that the matter of £5 or £6 in additional equipment on each car would nearly always effectually prevent the troubles above-mentioned.

If the average driver is not to be trusted—he is bound to speed the truck so as to damage the tyres, break the springs, and jar the entire mechanism—then some form of a recording device in a steel case under lock and key, is an absolute necessity. This statement seems rather harsh, but these are real service conditions. How to account for the lack of business acumen of the average truck purchaser is a conundrum, solvable only on the basis of ignorance on his part.

It would seem apparent that even a tyro would appreciate that it is folly of the worst kind to pay seven or eight hundred pounds for a car and hand it over to a £2-a-week man to smash at his own sweet pleasure. Yet this is exactly what is being done every day, and the purchaser blames the result on to the manufacturer. In no other department of his business would a man be guilty of such gross negligence, with his stationary engine, which is not subjected to one-tenth the unavoidable hardship put upon his truck. He takes every precaution—special governors, fancy oilers, a high-priced engineer, insurance, everything is purchased to increase its life and safeguard his investment. It is the same in every other branch of his establishment; with the commercial car alone does he change his methods.

By some it is laid to indifference, by others to parsimony; but the real cause is abject ignorance, backed up and abetted by the fact that no such precautions were necessary before in delivering his goods. In his inability to rise quickly and adapt himself to the needs of the new equipment he now endeavours to apply the same old methods to the truck.

There are so many benefits to the truck service to be derived from the use of these simple and comparatively inexpensive devices, that it would seem simply a matter of good judgment to have each and every truck equipped with them. Where they are used, excessive speeds are, of course, possible, but with such a device the driver is not apt to indulge in them. Each driver's movements are virtually under the eye of the superintendent of delivery, and careless, irresponsible drivers can very soon be detected and their places filled by more competent men.

If, as is often stated, two-thirds of all the trouble with commercial cars is due to the drivers, it certainly follows that a small investment per truck is in order if this will do away with the existing trouble. Instruments which record accurately every movement of a truck—the speed, the distance covered, the number of stops made, the time of each stop, etc.—are readily obtainable, and effectually put a damper on practically all the pernicious practices of the driver.

There is only one flagrant abuse not covered by these instruments, and that is overloading. This still remains within the power of the operator. Where the ser-

vice requires the use of several cars, and a regular superintendent of delivery is in charge, he can to a certain extent prevent this latter trouble; but it is too often true that in smaller installations the owner himself is largely to blame, and requests of the driver that more than is good for the truck be placed upon it. This again is, of course, due to ignorance on the part of the owner. However, this can be remedied by the delivery superintendent, the owner or the driver, if so inclined, by simply watching carefully that the load is uniformly distributed and keeping an eye on the spring deflection. It is a simple enough matter to one that is used to any given machine to tell by looking at the springs when it is being loaded beyond a safe amount. This is made more simple and brought within the jurisdiction of the owner, as the loading is usually done at home. In the case of speeding, careless driving and other troubles, these take place when out of sight of the home office, and therefore the need of recording devices.

It is difficult to believe, but the fact is being forced home to us, that commercial car users in general are not able properly to look after their own interests in this respect. There is but one conclusion—they must be placed under the care of a guardian, the commercial car manufacturer. In other words, it devolves on the manufacturer to protect not only the equipment of the purchaser, but to safeguard his own interests by supplying, as an inseparable part of the truck itself, some form of recording device.

NEW MUNICIPAL WORKS.

The Local Government Board have decided to hold inquiries into proposed expenditure by public bodies as follows:—Water Supply—Phillack Urban District Council, £1,350 (October 9th); Langport Rural District Council, £1,350 (October 10th).

Sewerage, drainage, and sewage disposal.—Whiston Rural District Council, £1,557; Wincanton Rural District Council, £993 (October 8th); Grimsby Borough Council, £7,948; Prestwich Urban District Council, £1,317 (October 9th); Ossett Borough Council, £8,124 (October 10th).

Street improvements.—Torquay Borough Council, £1,900; Bristol Corporation, £3,786 (October 9th); Skegness Urban District Council, £2,767 (October 10th).

Various.—Wolverhampton Borough Council, electricity undertaking, £22,000; Lincoln Corporation, refuse destructor, £10,850 (October 8th); Chertsey Rural District Council, housing, £1,770; Loughborough Borough Council, electricity undertaking, £14,000; Bristol Corporation, public baths, £27,542 (October 9th); Newcastle-upon-Tyne Corporation, housing, no amount stated (October 27th).

New Church at Norton-on-Tees.

A new church, dedicated to St. Michael and All Angels, has just been erected at Norton-on-Tees, from the designs of Mr. Temple Moore, F.R.I.B.A. It provides accommodation for 380 worshippers, and is capable of extension to hold 120 more. The work has involved an expenditure of £4,600.

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(From Piranesi.)

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CAXTON HOUSE, WESTMINSTER.

VOLUME 38. No. 979

In Praise of Stucco.

It is unlikely that the general public would suffer with such equanimity the destruction of our numerous masterpieces in stucco if it did not regard that material with somewhat jaundiced eyes. There are many people who pride themselves upon their dislike of stucco, and imagine that they display thereby the straightforwardness and hatred of shams which denote a sterling character. Their attitude, however, can be regarded in a less favourable light; it can be compared with that of men who value a piece of jewellery by the price of its material rather than by the thought and workmanship which have been expended upon it, or who will exchange the most exquisite design in silver-plate for something crude and coarse provided that the latter be of pure metal. In fact, it is possible to argue that the contempt for stucco is just a little vulgar. That it is responsible for many hideous discords and the desecration of whole areas of our metropolis, there is not the slightest room for doubt. If the elegant plaster houses, so pleasing both in the harmony of their tone and the endless variety of their design, which still dominate some of the residential districts in the West End were appraised at their proper worth, we should not have our senses outraged by the rude irruption of bright red brick and terra-cotta in an environment which is ill-fitted for them. The value of the tradition these houses represent becomes obvious to anyone who cares to survey the streets where it has been allowed to become extinct. How painful it is, when riding on a 'bus from Hyde Park to Twickenham, to see all the excesses of modernity, the motley of materials, the deplorable chaos both in colour and in form!

It is not as if stucco were ugly. Travellers have rejoiced to see the walls of Mohammedan cities, that glitter so brightly against a sky of intense blue. But the effects of plaster are none the less entrancing even in misty England. Londoners are reputed to be slow to recognise the beauties of their city. Yet Whistler was able to teach them to admire even their fogs, to realise how fine St. Paul's may look before a copper-coloured background, or to grow ecstatic over a pea-green haze. Would that another prophet of equal wit and wisdom would arise who would compel them to regard with just esteem their noble streets and palaces of plaster, so productive of delicate harmonies in cream and in white, in gold and silver and grey! Few sights are more beautiful than Regent Street midday in April after a shower of rain.

There are two reasons why plaster is especially appropriate for use in all great and busy cities. In the first place the smoke tends to reduce most buildings in a modern town to a state of sooty blackness. One of the worst features is that the windows fail to stand out from the façade, for, as seen from most points of view, they are themselves dark; the shadows, too, do little to help us to interpret the forms which the architect may have chosen with such great care. What a contrast there is between Regent Street, which even to-day has

not yet lost its gaiety and charm, and hundreds of other streets, like Tottenham Court Road, that provide long vistas of indistinguishable grey over which mediocrity seems to lie like a pall! But apart from the fact that plaster can be painted, and so renew its freshness every season if need be, it has another advantage over stone and brick. The buildings lining a street do not comprise the whole of the picture which confronts us as we pass along it. There is not only architecture, but a restless stream of traffic which becomes intensely wearisome to the eye if it be not provided with a foil, a contrasting element of quietude and repose. Now, this function is far more adequately performed in a street which has walls of smooth plaster than in one whose surface is broken up by innumerable mortar joints. This question of traffic has not yet been properly considered, but without undue dogmatism one may lay it down as a principle that the greater the volume of people and vehicles which throngs down a street the more necessary it is to have restful architecture as a foil. Most of our stucco streets are quite pleasing to the eye, however crowded they may be, but Oxford Street, and Bond Street, and, in fact, three-quarters of our thoroughfares, look their best on Sunday, when they are comparatively empty. Their architecture is of a miscellaneous character, exhibiting such a broken surface that our view tends to become overburdened with detail; but when we can rest our eyes, not only on the sky but also on the smooth grey road, we are furnished with an antidote that makes the picture tolerable. The French once perceived the virtues of the flat façade, as countless streets in Paris still prove, but in their over-decorated modern work (which may be said to emanate from the Beaux-Arts School) this quality of restraint is absent.

The most important movement in architecture to-day, and the one that provides the greatest field for originality, is that which concerns itself not so much with the individual building nor with any affair of detail or ornament, but rather with the relation that each part bears to the whole; it will cause the building to be subordinate to the street, and the street to take cognisance of the fact that apart from its other functions it must perform the office of a background for the ceaseless activities of city life. It is not unlikely that when this latter consideration is given its proper due we shall have a revival of the use of stucco, a material which, above all others, is adapted to be a background. Moreover, a stucco treatment can be invested with scale, dignity, and refinement.

This much can be asserted without disparaging the beauties of brick or stone. Mellow brickwork looks charming in the country, or in quiet streets and squares, but it is ill-suited for the busiest thoroughfares; and however good stone may be for exceptional buildings, such as churches, public offices, and libraries, if employed everywhere in an industrial town it gives it an appearance of dinginess.

The nobility of a design does not depend upon the strength or hardness of the material stuff of which it

consists. A composition such as Regent Street used to be in the old days is expressive of a larger spirit than many a modern building that flaunts its fine ashlar and to which the rarest quarries have paid tribute.

A. T. E.

The Tenement and the Cottage.

THE rehousing problem has resolved itself into one of two methods—spreading people out in thin layers, or piling them on top of one another. The latter method used to be commonly regarded as the only possible one, but, with better means of communication, the alternative method has come more and more into vogue. The great difficulty arises, of course, from site value. A city district becomes reduced to a slum, and, for the general well-being of the community, the offending mass of bricks and mortar has to be swept away. Accordingly, the area is cleared and there arises, phoenix-like, a healthy tenement on the old area. But the low rents formerly charged in the slum dwelling are not possible in the sanitary tenement, and thus it happens that the old tenants are not rehoused in this new abode, but fly to other parts, where they proceed to make a fresh slum. Hence the many disappointing attempts at rehousing in civic areas, and the later endeavours to find a solution of the problem in the erection of cottages in urban districts. The comparison is well illustrated by some figures which are supplied by Mr. W. E. Riley, F.R.I.B.A., superintending architect to the London County Council. Mr. Riley says that whereas the cost of a three-room cottage at Tooting, a suburban district, was estimated at £263. 10s., the actual cost of a three-room tenement on an estate in the central area of Holborn was about £760, the land itself having cost £454. A family of six could thus be housed at Tooting for about five-eighths of the cost of the land alone in the central area: which seems to indicate very clearly that the solution of this huge problem is likely to be found in small houses in urban areas rather than in large tenements on costly city sites.

Trade-Unionism and Corporation Contracts.

A REMARKABLE piece of quixotism is reported from Sheffield. A deputation of organised workers has placed before the Finance Committee of the Sheffield City Council the modest propositions "that all employees in the service of the corporation shall be members of the respective trades unions for which they are eligible for membership," and "that all contractors should be required to employ trades unionists only in executing contracts for the corporation." It would be easy to denounce these claims as impudent, arrogant, and so forth; but denunciation is not argument, and merely adds fuel to the fire. No matter how mistaken these members of the Federated Trades Council and the Building Trades Federation may be, it is impossible, on an impartial view, not to admire their sturdy faith in what they conceive to be their principles. They are exhibiting the courage of their convictions. Rightly or wrongly they believe that the trade union is an essential of present-day industrial conditions, and they have therefore had no hesitation in asking the corporation to accept this point of view and to give practical and substantial expression to it. There is also among the men a sincere belief that trade unions are beneficial to the employers as well as to the employed, and in this belief they are often encouraged by employers themselves. Organised labour, it is argued, is the strongest bulwark against unfair competition between employers as well as between men. It does much, in both directions, to prevent price-cutting. Collective bargaining prevents the workman from selling his labour too cheap, and operates less directly, but not less surely, in

preventing the employer from underselling his competitors, because he cannot get cheaper labour than they can, and must therefore tender on much the same basis. Hence it is due to the "fair" employer to insist that corporations shall be bound by a fair-wages clause to refrain from accepting the offers of his rival, who might be able to undersell him by having cheaper labour at command. It is less possible to prevent the employment individually of non-unionist workmen than to rule out whole companies of them by disqualifying their employers through the ingenious device of a fair-wages clause. But it is one thing to ensure that the contractors for corporation work shall all be on the same level with respect to cost of labour, and quite another to insist that they shall not employ non-unionists.

Baths in Small Houses.

PERHAPS Lord Salisbury was misquoted as having said, at the recent Church Congress, that "neither baths nor parlours were the saving of souls, nor did they even make any substantial difference in the public health." It seems incredible that, even in this day of general topsy-turvy opinions, the noble lord could have committed himself in cold blood to so reactionary a pronouncement. For the sake of rhetorical effect, speakers often make an extravagant statement which they intend to qualify before closing—a dangerous practice, for sometimes the qualification is accidentally omitted by the speaker, or is not mentioned by the summarising reporter. However this may be in the case of Lord Salisbury, Mr. J. Gordon Allen, A.R.I.B.A., has thought fit to contest the point. "Surely," he exclaims, "every modern cottage ought to have a bath. The lack of opportunity for cleanliness must lead to physical as well as moral degeneration." Passing by as a thing of naught the quibble as to whether it is the cottage or the cottager that should have a bath, it is self-evident that Mr. Allen is entirely in the right. Every self-respecting architect urges the provision of a bath even in the meanest of dwellings, whether or not the cottager is more likely to turn the opportunity to base account. The ascertained fact that many cottagers prefer to keep coals in the bath, rather than to put it to the use for which it was intended, does not absolve us from the duty of showing very practically that cleanliness is expected. Conversion—or perversion—of the bath into a coal-scuttle is often, as Mr. Allen observes, a result of placing the bath in a scullery or living-room, where it is difficult or impossible to obtain the necessary privacy. If it is objected that the provision of a small bath-room would add too much to the cost of building, we reply that cheapness is not the be-all and end-all of cottage-building. Cheapness is too dearly bought at the price of physical and moral degeneracy.

Towards the Betterment of Lettering.

A QUITE unusual kind of exhibition is being held at the South London Art Gallery, where there is to be seen a collection of specimens of lettering. From this it is a natural inference—and, moreover, a very gratifying one—that the importance of the subject is at length being recognised. Of many architectural drawings, and of many more business premises that are actually in being, it may be said that "the letter killeth." Architectural draughtsmen, however, are rapidly freeing themselves from this reproach, the lettering upon most drawings being nowadays quite respectable, while in a growing number of instances there are more or less successful attempts to recapture the perennial charm of eighteenth century calligraphy. We are glad to hear of this exhibition, more especially because it reveals a tendency that may ultimately render obsolete the bad lettering on business buildings.

"OUR FATHERS BEFORE US": A CONVERSATION ON HOUSE DESIGN.

SPECIALLY CONTRIBUTED BY H. S. GOODHART-RENDEL.

(Concluded from page 348, No. 978.)

WE accordingly started, I, for my part, distinctly cheered. But my hopes for the future were not to last. We came to the milestone. "I remember now," exclaimed my guide; "it all led to nothing." I was really disappointed. "Why, what happened?" I asked. "Queen Anne," he answered, curtly. "Oh!" I said vaguely, and then, as I remembered, "that was Chelsea and Bedford Park, and all that sort of thing, wasn't it?" "Yes, and Hampstead and the Cadogan district. A great come-down from what they had been doing, I have always thought. But, here, you can see for yourself." I could. (Fig. 8.) Red and white, in all the glory of Broseley tiles and gauged-brick trimmings, there appeared before me a particularly Queen Anne villa, very dazzling and new. As we stood looking at it a pleasant-looking man joined us and addressed my companion. "I see that you are looking at my house," he said. "May I ask for a frank opinion?" "Why should you?" inquired the old man. "It would interest me," persisted the other. "Well, then, I should say that if you had built it ten years ago, it would have been ten times better." The stranger looked surprised.



Fig. 8 (1883).

"But ten years ago," he said, "it would not have been Queen Anne." "That's exactly what I mean," was the reply. "By the way, who was your architect?" The information was given. "I am sorry," said my guide. "He is a clever man, who used to have a thorough grip of the Gothic work which English architects spent half a century learning to do. And yet he follows this fashion with the rest." "But surely," I said, "Classical forms are more suited to our needs and ideals than Gothic?" "Classical!" cried the old man. "Do you call this stuff Classical? Good heavens! anything approaching *Classical* would be a very different story. To begin with, we should have to learn how to plan. But this haphazard stuff is nothing at all, least of all Classical."

The owner of the house looked depressed. "Then you do not think the new style pretty?" he asked. "That is exactly what I do think it," was the petulant reply. "It has lasted nearly ten years now, and it gets prettier every day. It will soon get so pretty that it will be cast down like Jezebel, and I, for one, will not mourn for it." Our new acquaintance evidently felt that he had had enough. "Before taking my leave," he said, "I must thank you for paying me the compliment of such candour. You will forgive me if I hope that you may be wrong." "Of course," said my companion, as they shook hands. "I probably *am* wrong—nothing but time can show." And thus they parted, and once again we resumed our way.

I was growing more and more tired at every step, and rejoiced inwardly at the reflection that there were

only thirty more years to travel. "We will not go too near the next house," said my cicerone, as we passed a milestone: "the half-timber-work is always falling off, and it is none too safe to walk under it." "Oh, dear!" I ejaculated, as the house itself appeared before us. (Fig. 9.) "I confess," the old man said, "that this is rather an extreme example, but I fear that it cannot be considered unique." "All the same, I do not think that it is fair," I protested. "I know plenty of houses built about 1893 that are not half as bad as that." "No doubt, no doubt," was the answer. "But I am sure that you also know plenty that *are*." "Well—yes—I grant you that." "And I venture to suggest that almost all of them are just as weakly planned. Come inside and tell me."

We explored from roof to basement. Everything seemed conveniently arranged, but of planning proper there was not a trace. It would be safe to say that in not one of the rooms did either fireplace or window come in the middle of a wall. "All this is only too typical," I sighed. "I wonder if as a nation we shall ever learn." "I cannot prophesy," returned my companion. "I have never been further into the future



Fig. 9 (1893).

than 1913, and there will have been little change by then. Talking of 1913," he continued, "I suppose that you are chafing to get on?" I admitted, as politely as I could, that this was so. He scrutinised me. "You really do look tired," he said. "I think that we had better get another stage behind us without delay, and then there will be only one more between us and home."

The thought of home gave me new strength. We started at a good pace. "I imagine that you look forward to being back again?" he interrogated. "This journey has been *most* interesting," I replied, "but all the same, I confess that I have seen little that has tempted me to linger." "Naturally not," he returned. "You have not seen anything that is even particularly good of its kind; we have been reviewing averages." "Of course," I hastened to say, "I have quite understood that; and really it has been most instructive." "I am glad that you have found it so." (The old man was obviously pleased.) "Now, here is our last example but one." (Fig. 10.)

After a moment's struggle I controlled my annoyance. "I suppose," I said, "that I deserved this. But how did you know?" "How did I know what?" he asked puzzled. "Oh! be candid!" I exclaimed. "Once again I ask—*How* did you know that I used to go in for black chimney pots and green water-butts?" "You didn't ask that," he corrected. "You only asked me 'how I knew,' without specifying what it was I knew. As a matter of fact, I didn't know, though I'm not in the least surprised, now that you tell me. Everybody I've ever brought here thinks that I



Fig. 10 (1903).

intend a personal insult." I laughed. "The cap must be a common size," I said, "it certainly fits me very well. But the spectacle of this horrid little house is naturally painful to all of us guilty ones." "Then I will not trouble you with any more of it; let me see you home at once, as it is getting dark."

For the last time we set out together. Now that we were soon to part I felt a renewed curiosity about my companion. "Do you often come up this road?" I inquired. "If I can find anyone to escort," he answered. "I must allow that I seldom walk along it myself." I asked him why. "It does not lead anywhere in particular," he said, "and it is rather depressing." "It is certainly that," I assented. "But I am sure that it is salutary to have travelled it at least once." "I wonder whether it has done you any good. We'll soon see." I felt nettled. "How?" I asked. The old man smiled. "Do you see where we are?" he questioned. I looked around me. Were we already back in our own time? I could not be sure. Suddenly I espied a pediment through the trees. I doubted no longer. "We are home again," I said. "Ah! the pediment!" chuckled the old man. "So much for the pseudo-Georgian of to-day! Come nearer." We walked together up to a little house, the design of which seemed to me very familiar. (Fig. 11.) "Thank heaven," I said. "For what?" blandly inquired my guide. "For something tolerable, at last," I replied. The old man looked at me pityingly. "I fear," he said, "that you cannot have profited much by our expedition. This house is, in all essentials, as bad as anything that we have seen. In some ways it is worse." I was in no mood for argument by this time. "Is it?" I asked wearily. "I must confess that I like it much better than any, but I dare say that you may be right."

But my voluble companion was not to be foiled by such ignominious retreat on my part. "Listen!" he insisted. "You have got into the bad habit of judging architecture from a purely superficial point of view. It is not altogether your fault, since most of your contemporaries are as bad. You have a fancy for white wooden cornices, for sash windows with thick bars, for a certain kind of formality in elevations generally, and you forget everything else—proportion, composition, logic—everything. This little house before us is a case in point. It is thoroughly badly proportioned; the wall is divided into two equal parts horizontally and

three vertically, the centre mass is neither dominant nor subordinated, the doorway quarrels with the pediment, the dormer-windows are 'out of scale,' so are the quoins, and the chimneys came anyhow. It will be the same inside; the chimney-pieces will have coarse mouldings, the doors delicate ones; the cornices will be bold, the skirtings weak, economical little grates will eke themselves out with tiles to fill big fire-openings—everything will be extremely XVIIth century, no doubt, but just wrong."

"But, surely," I could not help protesting, "this is applying altogether a higher standard than we have hitherto adopted. Few, if any, of the other houses that we have seen would pass such a test." "I do not know about that," he replied. "I think that you would find that in either of the first two that we looked at, sound traditions had survived. The faults in these, as also in the Italian villa, were purely those of taste, and therefore in a sense venial. For the rest the sham castle, the cottage *orné* and the Ruskinite abode were odious, I admit, but the others were really very little worse than this. And there is one sense in which all were better—without exception they showed a deliberate intention on the part of the designer to adapt rather than to imitate." I had no answer ready. "Is this merely an imitation?" I asked weakly. "Yes, and a very bad one, too," was the reply. "Its only points of originality are the architect's mistakes, though I grant that there is a large number of those. He set himself an easy task and failed in it. The others aspired higher, and failed as much perhaps, but certainly no more."

I did not like to acknowledge that I knew him to be right, and yet candour compelled me to admit as much to myself. Somewhat abruptly therefore I turned to him with outstretched hand. "I am afraid it has got so late—" I began. But my elderly cicerone had vanished.

* * * *

As I walked back to the station in the dusk, I cannot say that I thought over my experience. Physically and mentally I was so exhausted that I believe I thought of nothing, and found my way home automatically. Only later did I attempt to recall and to record on paper the manner of strange lesson that I had received. That record I have now presented to the best of my ability, complete, save for one thing that I have kept to the last. After the bodily form of my mysterious friend had vanished from sight I heard his voice sending back upon the wind this envoy—

"I expect it will be Greek next. . . . only skin-deep, I fear. . . . but you never can tell. . . . mixed with French. . . . something might come perhaps. . . . but"

CHEAP HOUSES FOR WORKMEN.

WE are gathering together for publication a series of examples of houses for workmen and labourers in urban and rural districts. We do not contemplate illustrating the large tenement buildings which have been erected in our towns and cities, because we feel that this is a type of building which is becoming increasingly out of favour. Our concern is mainly with houses of two storeys. We are already in touch with a number of good examples, but it is obviously impossible for us to discover for ourselves—at least, without enormous difficulty—a tithe of what is being done in different parts of the country, and we should therefore feel greatly obliged to any of our readers who could direct our attention to any houses which have been built at a low cost within the past few years: our object being to ascertain, if possible, the most satisfactory attempts that have been made towards the solution of the pressing problem of cheap housing. Photographs are specially desired.



Fig. 11 (1913).

THE PLATES.

Sculpture on the Civil Engineers' Building.

IN our issue for October 1st we published two exterior views of the new building for the Institution of Civil Engineers which is now being completed from designs by Mr. James Miller, A.R.S.A. We now give a detail view of the upper part of the main entrance in Great George Street, with the sculpture group above it, by Mr. Albert Hodge. This shows the arms of the Institution on a shield with boy figures on either side representing Science and Engineering; festoons of leaves and fruit, a pair of lions' heads, and some Roman trophies completing the scheme. The sculpture is vigorously executed and adds an appropriate touch of richness to the entrance.

Debenham and Freebody's Shop Front.

The shop windows at Messrs. Debenham and Freebody's premises in Wigmore Street are an excellent example of the arcaded treatment. There is a large unobstructed area, and the glass line is carried down to within about a foot of the pavement, thus providing space for the amplest display. The arcading is of as light a character as possible to meet the requirements of the shop; at the same time it is sufficiently substantial to form a good base for the building. We do not recall a better example of its kind in London, though it was done some years ago. The essential feature is, of course, the height of the arcading. With low arcades there would not be that abundant lighting which is a first requirement of a modern shop, but here it would seem that the best possible result has been obtained. The wall face is carried out in glazed ware—Doulton's "Carrara," we believe—and has a very satisfactory appearance. The joint architects were Messrs. William Wallace and J. S. Gibson.

No. 129, Grosvenor Road, London, S.W.

This building has been erected on the site of an old riverside wharf, and occupies two sides of a courtyard; a third side is formed by the wall of the adjoining premises, while the fourth side is open to the river, except for a low wall. Internally the building is planned to meet special requirements. The principal rooms are on the ground floor, and are so arranged that they face the courtyard and river, thus ensuring quiet and privacy. The less important apartments face the road. The first floor is occupied by servants' quarters. The principal feature of the interior is the large River Room, which measures about 21 ft. by 42 ft., and has a wide bow window overlooking the river. The effect of the passing shipping, seen from this room, is very striking and picturesque. The courtyard is treated with white stucco. Messrs. G. and A. Scott were the architects, and Messrs. Holloway Bros., Ltd., the contractors.

St. Jude's Church, Gray's Inn Road.

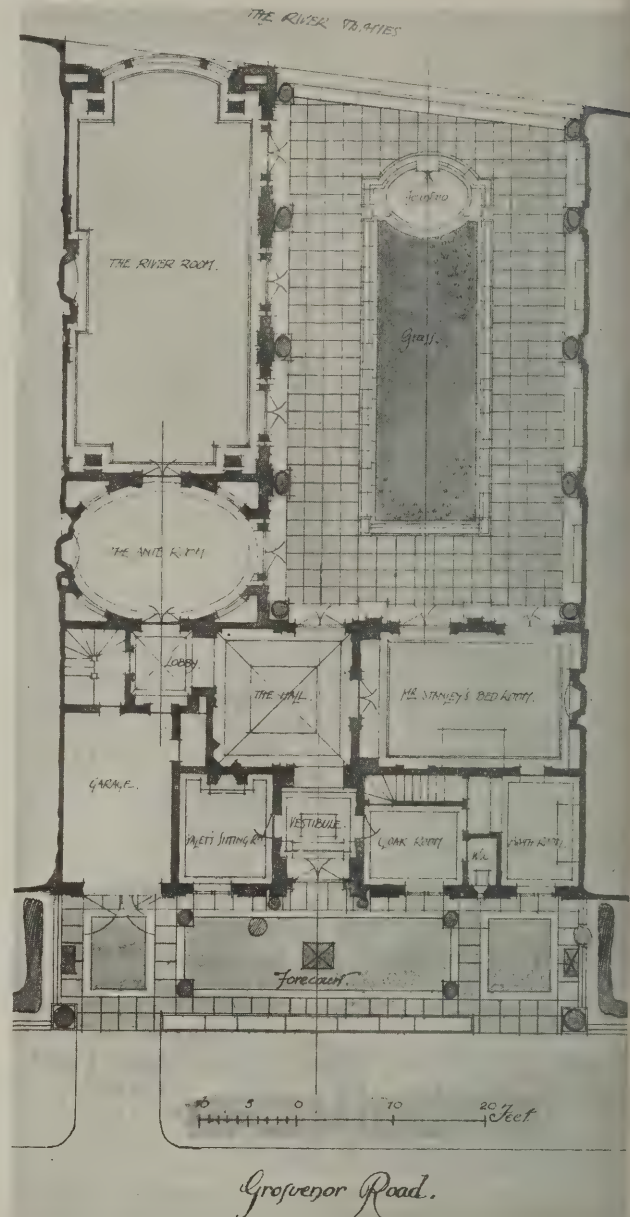
This is a very interesting example of early nineteenth-century church work, by Pennethorne. The cost had evidently to be kept as low as possible, so that only the cheapest materials could be used; but they are treated in a dignified manner, and the result is one which is worthy of emulation. Suffolk bricks were used for the walling, with stone dressings.

Neo-Grec Detail.

The example published this week shows the foot of the stairs leading up to the Assize Court in the Palais de Justice, Paris. These stairs are in the celebrated Galerie de Harlay. The lion terminals are most vigorously treated and full of suggestion.

The Royal Theatre, Berlin.

This building, erected towards the end of the eighteenth century, is very characteristic of Schinkel's monumental manner. The masses are well disposed, though there is perhaps a lack of proper relation



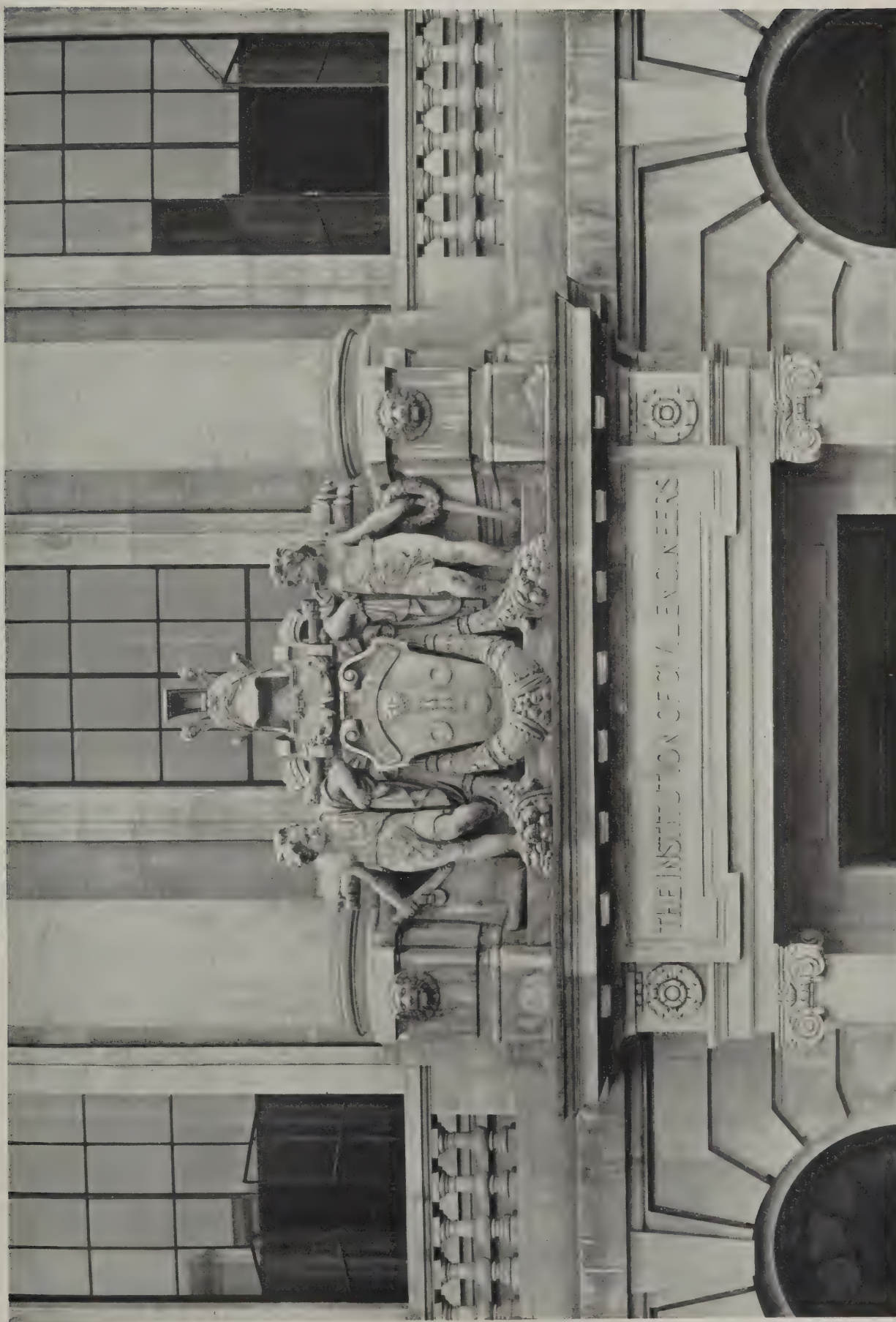
NO. 129, GROSVENOR ROAD, WESTMINSTER: GROUND-FLOOR PLAN.

G. AND A. GILBERT SCOTT, ARCHITECTS.

between the two pediments. The fenestration is remarkable and the treatment of the Ionic Order very dignified.

Working Drawing of Liverpool Cathedral Organ-Case and Choir Stalls.

The organ is situated in two chambers (one at each side of the choir) which are provided over the westernmost bay of the choir aisles, the aisles being vaulted at a lower level here than elsewhere in order to give the requisite space above. These chambers have open arches into the choir, and also into the central space. Each half of the organ, therefore, has two cases, one projecting into the choir and the other into the central space. The organ, which will be the largest in the world, is the gift of Mrs. Barrow, and is being built by Messrs. Henry Willis and Sons. The oak cases are being made by Messrs. Morrison and Sons, the builders of the cathedral, and the carving is being executed by Mr. Joseph Phillips. The choir stalls, which occupy the westernmost bay of the choir beneath the organ, are of oak, with some stone canopy work above. They are the gift of Mr. S. J. Waring, whose firm is carrying out the oak-work, while the carving is being done by Mr. G. Ratcliff. Mr. G. Gilbert Scott is the architect.



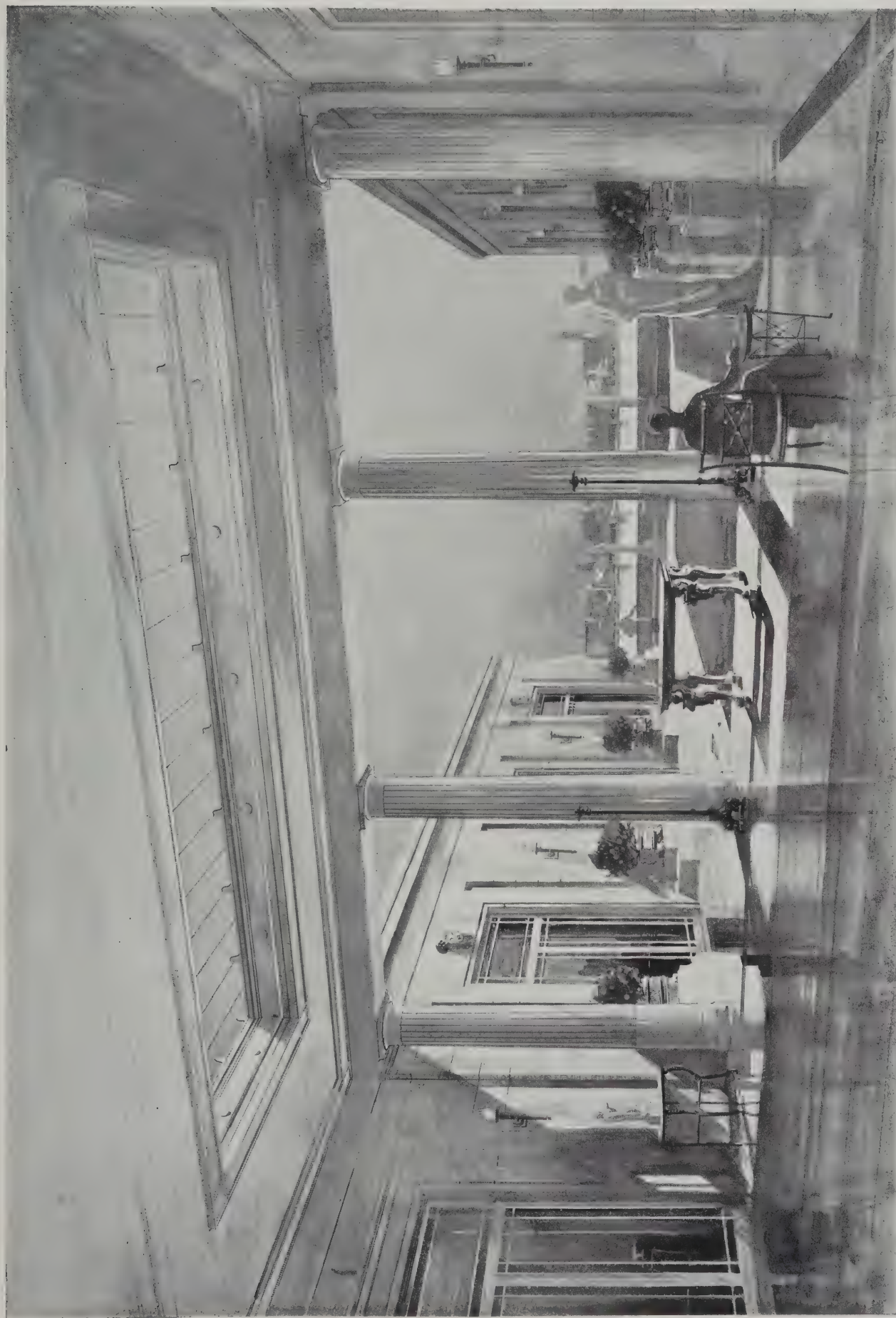
CURRENT ARCHITECTURE. IV.—INSTITUTION OF CIVIL ENGINEERS, WESTMINSTER: SCULPTURE OVER MAIN ENTRANCE.

JAMES MILLER, A.R.S.A., F.R.I.B.A., ARCHITECT. ALBERT HODGE, SCULPTOR.



MODERN SHOP FRONTS. III—DEBENHAM AND FREEBODY'S, WIGMORE STREET, LONDON.

WILLIAM WALLACE AND J. S. GIBSON, ASSOCIATED ARCHITECTS.



MODERN DOMESTIC ARCHITECTURE. III.—LOGGIA AND COURTYARD, No. 129, GROSVENOR ROAD, WESTMINSTER.

G. AND A. GILBERT SCOTT, ARCHITECTS.



EARLY NINETEENTH-CENTURY ARCHITECTURE. II.—ST. JUDE'S CHURCH, GRAY'S INN ROAD, LONDON.

SIR JAMES PENNETHORNE, ARCHITECT.



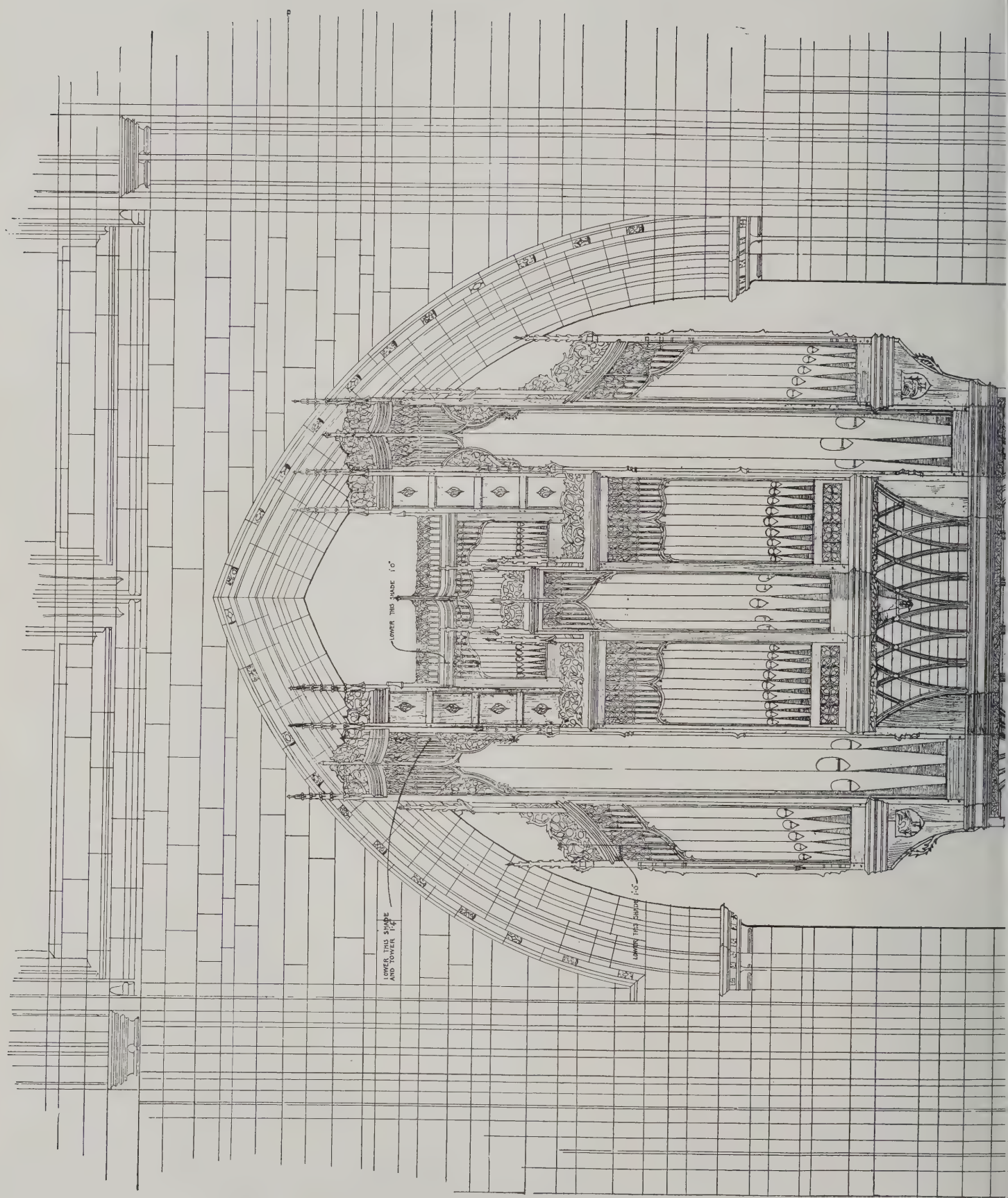
NEO-GREC DETAIL. III.—STAIRS LEADING TO ASSIZE COURT, PALAIS DE JUSTICE, PARIS.

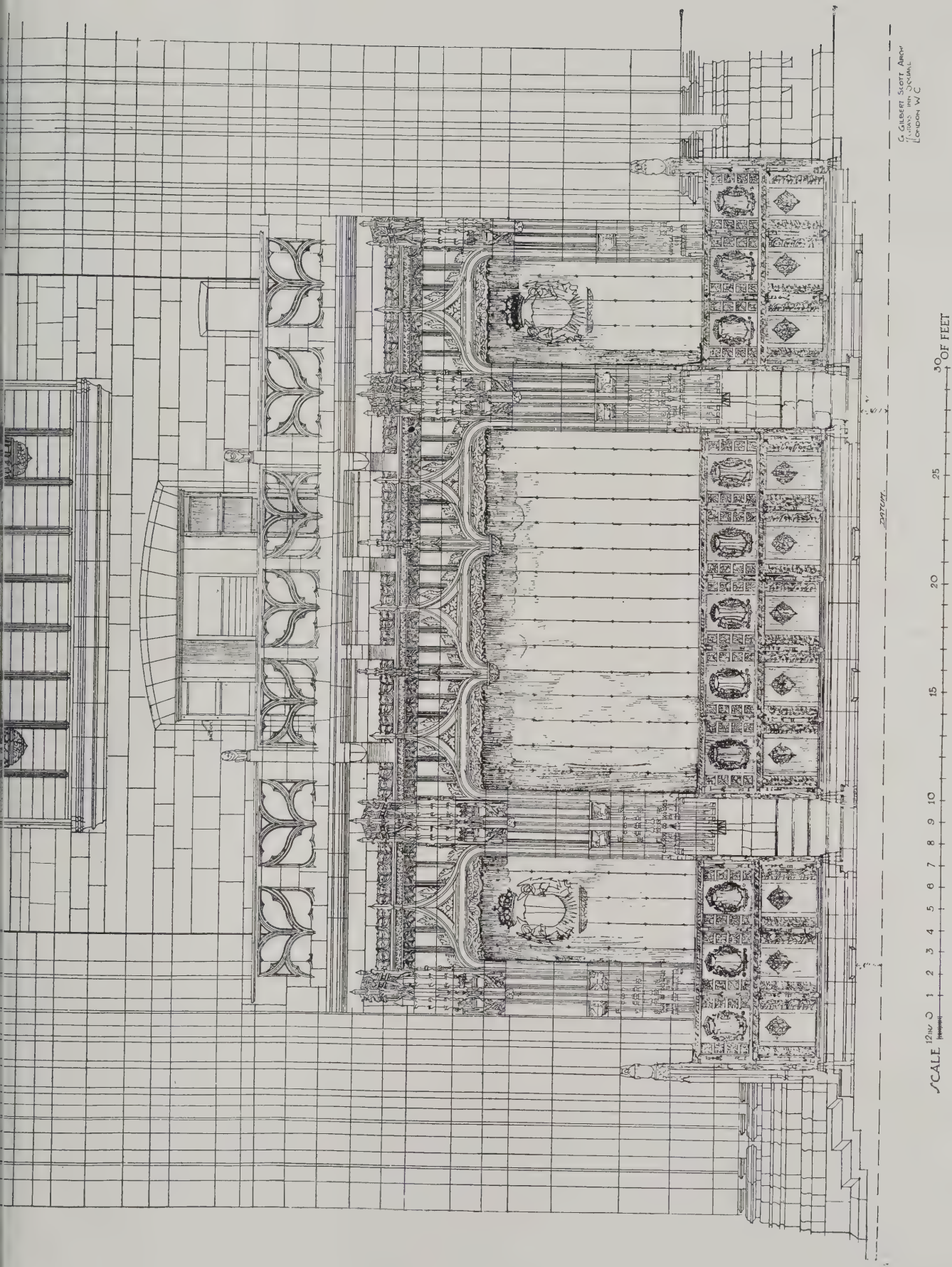
L. DUC, ARCHITECT.



MONUMENTAL ARCHITECTURE. III.—THE ROYAL THEATRE, BERLIN.

KARL FRIEDRICH SCHINKEL, ARCHITECT.





WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS (NEW SERIES). III.—LIVERPOOL CATHEDRAL: DETAIL OF ORGAN CASE

AND CHOIR STALLS.

G. GILBERT SCOTT, ARCHITECT.



AN ARCHITECTURAL "INVENTORY."

BUCKINGHAMSHIRE may be classed as one of the "unspoiled" counties. Newer industries—such as destroy the face of nature and call into existence crude and ugly buildings—have left it unscathed. Its only manufactures—paper, lace, straw-plait, bricks, and pottery—are of the more inoffensive sort, the population being mainly engaged in rural pursuits—the breeding of cattle, the raising of corn, and very specially the tending of beech plantations, by which the gentle craft of chair-making is supported. It follows that the people should be, and they are, conservative of habit and tradition, and that they can show us many interesting survivals of former centuries. Altogether, as the preface to the Royal Commission Inventory states, Buckinghamshire is a pleasant, quiet land, a land of competence without great wealth. The lack of industrial opportunities, and the prevalence of pasture, which requires less labour than agriculture, have had the effect of maintaining a small and unexpanding population. Hence, many of the towns and villages have been in the past but slightly tempted to increase, and consequently have altered little as regards their general plans.

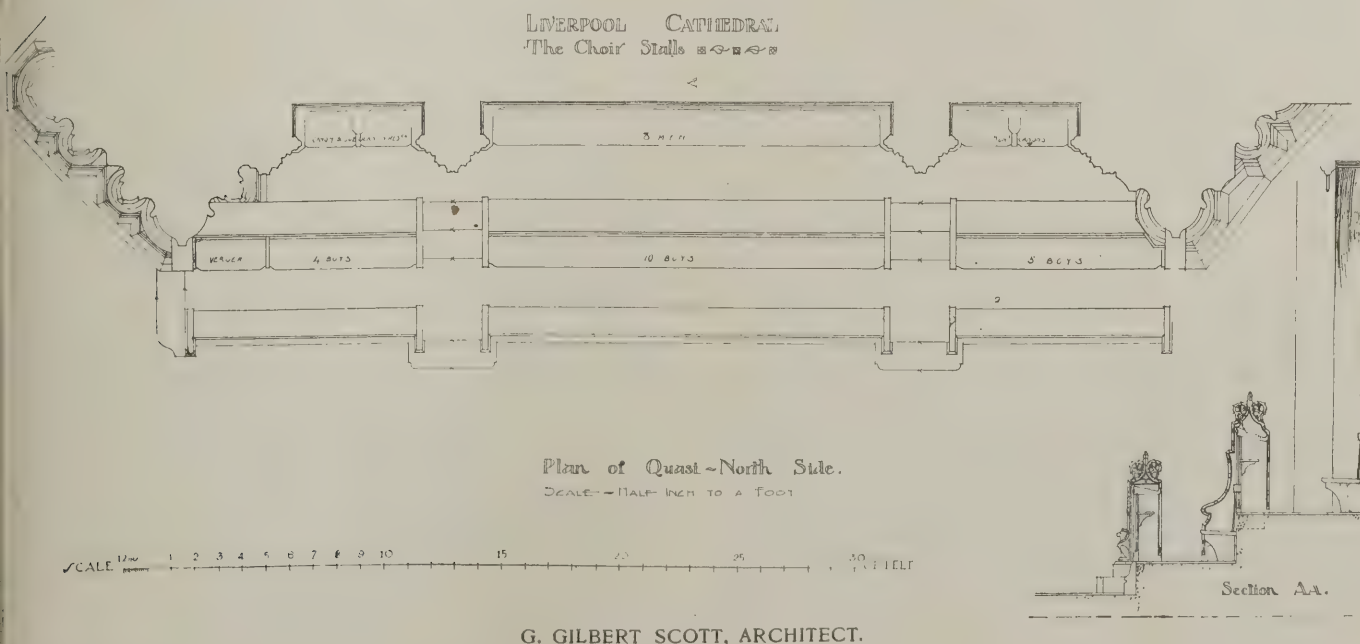
The Royal Commission "to make an inventory of the ancient and historical monuments and constructions connected with or illustrative of the contemporary culture, civilisation, and conditions of life of the people in England, excluding Monmouthshire, from the earliest times to the year 1700, and to specify those which seem most worthy of preservation," was appointed in October, 1908, with Lord Burghclere as chairman, and the fruits of its labours, so far as these have become apparent in book form, seem destined to add greatly to the general store of information, as well as systematising it into accessible collections. If the remainder of the kingdom is treated in the same spirit as Buckinghamshire has been, the Royal Commission will accomplish a work of the utmost utility and interest to the student of ecclesiastical and secular architecture.

In the admirably philosophical historical summary prefaced to the Inventory one gets a typical example of the haphazard way in which towns grow up. Roman roads traverse the country, the earliest road in the district being probably the so-called Icknield Way; but, unlike the Romans, the Saxons did not lay out roads definitely. Tracks worn from one village to another eventually became roads, of which the formation was governed by the necessities of avoiding obstructions, such as woodland, marsh, rivers; and proprietary rights

had to be regarded. "Hence it is that roads surviving from this date are serpentine in character, an inconvenience which has become emphasised in these days of motor traffic." What Professor Maitland calls the "nucleated" village, which usually lies on rising ground a little way off a road or river, appears to be the earliest type of settlement of the Saxon period. Another type, and the most common in the county, is the straggling road settlement, as at Stewkley, which is probably a later development, arising when convenience of communication had become more important than a defensive position. A third type is that around a returning road forming a three- or four-sided figure, which is usually to be found in forest districts, and is frequent in Middlesex and the woodland parts of Sussex. "In all these types of villages there still survive in some instances the mill, the smithy, the green, the pound, and the dovecot, and, occasionally, the stocks and cage or lock-up—all relics of a now departed manorial or parish organisation." Except Buckingham, which grew up at the fortifications established there in the tenth century the towns in the county have arisen at cross-roads or under the shadow of a castle—e.g., Aylesbury, which is probably the oldest town in the county, being mentioned in the Anglo-Saxon Chronicle as early as A.D. 571.

There are considerable Roman remains in Buckinghamshire, and many of these are illustrated in the Inventory. Coming down to more modern times, we find two schools of the sixteenth century—Amersham and Whitchurch—and four of the seventeenth century—Beachampton, Marlow Urban, Steeple Claydon, and High Wycombe. Manor houses and manor farms are listed by the score, and farm-houses proper are still more numerous; one of them, the Bell Farm at Eton Wick, being of the fourteenth century, but most of them are naturally of the seventeenth. Inns of the fifteenth century are at Aylesbury, Fenny Stratford, and Great Missenden; two-and-twenty or more are of the sixteenth century, and more than seventy of the seventeenth. Of domestic architecture there are six examples of fourteenth-century work, twenty or more of the fifteenth, nearly a hundred of the sixteenth, and about a hundred and fifty of the seventeenth.

The churches scheduled by the Commission are of course very numerous, and their elevations, interiors, and details provide the materials for many illustrations. Of great architectural interest is the parish church of St. James, Hanslope, whose spire is noted as an uncommon feature in Buckinghamshire. The chancel and probably an aisleless nave were built about 1170, the



G. GILBERT SCOTT, ARCHITECT.

north and south aisles were added in the thirteenth century, the latter being lengthened one bay towards the west early in the fourteenth century. The west tower and spire were built in the fifteenth century, but the spire was almost entirely reconstructed in the nineteenth century, and the whole building underwent extensive alteration in 1904-5, the twelfth-century work, however, retaining much interest. The walls are of limestone rubble, with roughly squared blocks of stone in the south aisle, and much ironstone in the south porch, while the walls of the tower and the dressings of the chancel are of ashlar. The south wall of the chancel retains almost entirely its twelfth-century design, but has been considerably restored. An original doorway remains in remarkably good condition. Its round head is of two orders, the outer showing the characteristic zigzag ornament, and formerly resting on circular shafts, of which, rather curiously, only the capitals remain.

The dovecot at Clifton Reynes, which also is illustrated in the Inventory, is a circular building, with a slight offset near the top of the walls. The roof is thatched, and has a small lantern in the middle, and the interior is fitted with many nests in the thickness of the wall. It is of the seventeenth century, and its condition is reported as being so bad that this curiously interesting building will probably have to be pulled down.

Of more than two hundred illustrations that are given in the Inventory, there are few or none that could willingly be spared. Almost all reproduced from photographs, they bear striking testimony to the topographical value of the camera and the speed of process engraving. But a generation or so ago the production of such a book would have been a most laborious and highly expensive undertaking, as each of the two hundred illustrations would have had to be drawn and engraved on wood, and their superior artistic value as compared with photo-mechanical process pictures would have been seriously discounted by their inferior fidelity. By the way, we rather doubt the durability of the glazed paper upon which these illustrations are printed, and, as permanency is of the essence of a topographical document, this is a point which demands serious attention. These volumes, with their wealth of illustrations, excellent typography, neat cloth binding, and quarto shape, entirely put to shame the old Blue Book style of official publication, with its awkward foolscap size, arid types; flimsy and frightfully blue paper wrapper, which wilts away in one's hands, and its altogether depressing general aspect; whereas the Inventory volumes are pleasant to see and to handle, while their contents exhaust the many interests that make monuments worth preserving; and as these interests are mainly architectural, the value of these publications can hardly be exaggerated. They have been described—not with opprobrium—as “glorified guide-books.” They are more than that. When, in due time, they include all the monuments in the kingdom that are worth preserving (Monmouthshire, we trust, will not be for ever invidiously excepted), there will be available for architectural study a wealth of materials transcending the dreams of former generations. The Royal Commission on Historical Monuments is doing its interesting and highly educational work wisely and well, and we cannot but regret that its terms of reference exclude the very period—the eighteenth century—that is richest of all in purely architectural examples; and the Renaissance examples that have crept in—such as Winslow Hall (1700)—lend poignancy to the regret. The book on North Buckinghamshire may be had, price 16s. 6d., through Messrs. Wyman and Sons, Fetter Lane, E.C.

We trust very sincerely that the fine work of this Royal Commission will suffer no untimely interruption, but will go on steadily towards the completion of a project that, finely conceived, is being executed in the same spirit.

CORRESPONDENCE.

The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.
Correspondents are asked to be brief, and to write on one side only of the paper.

Contract Difficulties.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—I was extremely interested in your article headed “Some Difficulties and Responsibilities,” signed “V. B.,” contained in your last issue. As my contribution in this week's number treats the same subject in rather a different manner, I should like to point out the grounds of a slight disagreement between “V. B.'s” conclusions and my own.

“V. B.” says: “From this case it follows that if an employer were to say, ‘This is a section of the ground, but I do not answer for its accuracy,’ and it turned out to be inaccurate to the knowledge of the employer, then he could be held responsible.”

With this statement it will be seen from my article I am not in complete agreement. The case which “V. B.” refers to is, I think, without doubt, the case of *Pearson v. Dublin Corporation*, the facts of which are set out in my article this week.

I think your readers, if they will read the facts and decisions in the two later cases (*Boyd and Forrest v. Glasgow and S.W. Ry. Co.* and *Aird v. Trajong Pagar Dock Board*), in my article this week, will agree with me that something more than misstatement is required to make the building owner liable.

Liverpool.

E. J. RIMMER.

REPAIRS AT ST. MARK'S, VENICE.

THE basilica of St. Mark has an endowment of 51,000 lire (or £2,040) a year for the maintenance of its fabric, while, in view of the need for strengthening this edifice after the fall of the Campanile in 1902, a special grant of 1,000,000 lire (or £40,000) was voted in 1908, partly by the Italian Parliament and partly by the Venetian Municipality. St. Mark's has naturally benefited by a portion of this second sum, and on the Angle of Sant' Alipio alone—the part most in need of repair—some £2,000 a year has been lately expended.

This corner of the building, which is nearly opposite the entrance to the Merceria, was found (says a correspondent of the “Morning Post”) to repose on the most flimsy foundations, which have now been replaced by supports no less substantial than those of the new Campanile. In the course of the work various important discoveries have been made, which will doubtless in due course be set forth in detail.

Inside St. Mark's the ponderous scaffolding still stands beneath the Arch of the Apocalypse; but work is now going on there, and in two years' time, if all should be well, it will be removed. There is only one other part of St. Mark's which is still being repaired. This is above the chief door leading into the Atrium, where there is a huge crack in the wall. In order to repair this it has been necessary to remove the mosaic, but this will be shortly put back in its place. In the case of two other designs in mosaic—the Death of the Virgin and the Raising of Lazarus—new walls have been substituted for the old and cracked masonry without removing the mosaic covering at all. Behind several of the cupolas also new mortar from Casale Monferrato, similar to that used for the new Campanile, has been substituted for the old and crumbling stuff, which scarcely kept the bricks together. At present thirty-four workmen and ten workers in mosaic are being employed on the repairs at St. Mark's.

HERE AND THERE.

THE time has come to talk of Russian house-building, for, to me at least, that is the principal interest at the "Ideal Home" Exhibition. Mr. Ralph Knott's £200 cottage, with its steep pantile roof, lime-washed walls, and stained woodwork, and Mr. Crickmer's pair adjoining, are familiar friends—we have met them before in the garden suburb. The yards of canvas, overspread with Pompeian ornament, are not worth the time and trouble spent on them; they obliterate a better thing, the fine sweep of Olympia's roof. The Post-Impressionist dining-room is an utterly foolish conception, and, in its endeavour to be comparatively sane, fails even to be amusing; and the experiments in house decoration that adjoin it have all been tried before—in Germany—and found wanting. Such things as a silvery room with a silvery piano on which to play Beethoven's "Moonlight Sonata," or a nursery where a child sleeps in a big blue egg and looks up at a ceiling powdered with stars, are too precious for this world, and will not stand a quarter's wear and tear. The replicas of old rooms in Georgian, Tudor, and other styles, which Royalty and the Peerage have set their seal on take us back to sound periods of furnishing and decoration, and the sixpence we pay to see them is both a happy contribution to the funds of the Middlesex Hospital and an admirable outlay for our own interest. But all these things are not new to us; even if we have not examined the actual work before, we have seen numerous illustrations of it. So we come back to the Russian village. We find in it a wealth of peasant art that is delightful to study. But it is no concern of mine to write in these columns about "Kustarny" work, whether it be in lace or enamel or leather or bright-coloured fabrics. The art of house-building alone is our affair. So let us make a survey of these little houses.

To begin with, I know we are in that cold matter-of-fact place, the annexe, with its concrete floor and stark ironwork: I know, too, that instead of the simple Russian craftsman, London artisans have been at work here, under the instruction and guidance of certain gentlemen—Mr. Howard Cleaver, in particular—who have an intimate knowledge of the real thing. Nevertheless, with the aid of fir trunks (which encase the stanchions), an appropriate amount of turf, and a lavish extent of painted background, we have as close a verisimilitude of a Russian village as we may ever expect to find in a London exhibition hall.

The houses themselves are substantially realistic. They embody, in the most complete way, an art indigenous to the Russian countryside. There are districts of that great land where wattle-and-daub walls



RUSSIAN WINDOWS.

and thatched roofs are the staple; but, for the most part, I take it that the forest is the Russian's quarry. Out of it can be got the whole fabric of the house and its embellishment. The hewn trunk, its branches hacked off, is set up on a pair of trestles, and, with one man above and one below, working a long saw, is cut up as wanted. The selected lengths are adzed flat on two opposite sides, and so go to form the wall, the joints being packed with moss or flax or hemp, hammered in with a sort of blunt chisel. The roof is framed in a similar rude manner, boarded over, covered with thin wood shingles, bird's-mouthed to keep out wet, and a sort of loft is formed in the upper part. The most interesting feature of the exterior, however, is the treatment of the windows. The method varies greatly in different parts of Russia, but all are fitted with a shutter or shutters folding over the window, the whole being enclosed by a frame crowned with rough fretwork or carving. Here, as on the eaves-boards and the door posts, the village craftsman finds opportunity to indulge his skill. As will be seen, it is all quite rustic in character, but is, nevertheless, of great interest as characteristic of a people who are themselves extremely simple. In a sense we see here almost the work of the mediæval craftsman working in the traditional way. Be it noted, too, that the Russian village builder has nothing but the most elementary materials and tools at his disposal. With an axe, and a few kinds of saws and knives, he produces astonishing results. In the Olympia houses there is "one good coat of oil paint" on the woodwork around the windows, and the eye is caught by some touches of colour similarly modern in manufacture. The Russian builder, however, is unfamiliar with such luxuries. A kind of lime-wash serves for the white, and water pigments made up with local earths are employed as colours. His glass is merely the commonest flint variety. But, despite these many limitations, his work is an example to us.

The exteriors at Olympia are, as I have said, close copies of the houses to be seen in Russia, in so far as the Building Act will allow (the shingles are a good deal thicker than the customary ones, and there are both a door for entrance and one for exit, whereas the Russian house has but one door). Within the houses, however, the accurate representation largely disappears, so we need not discuss the interior. In particular, the Russian stove is absent—a substantial brick construction which is fired with wood for a day and remains hot enough to keep the house warm for the next two days. The Russian peasant sleeps on this! Apart from these necessary omissions, however, the exhibit gives one a remarkably good idea of what a Russian village is like, and a good hour can be spent in studying it.



A RUSSIAN HOUSE.

UBIQUE.

COMPETITIONS.

Technical Institute, Coventry.

Coventry Town Council propose to invite architects to take part in an open competition for the design of a new technical institute. The cost of the building will not exceed £25,000.

Lay-out Scheme and School, Yeovil.

Messrs. Potter and Warren, of Yeovil, have received the commission for the laying-out of the Kiddles Lane site and the erection thereon of school premises.

German Embassy Buildings, Washington.

Professor Bruno Moehring, the eminent German architect, has been awarded the prize in a competition for a new German Embassy at Washington, U.S.A. The competition was held in Berlin and was restricted to German architects.

King Edward VII. Sanatorium, North Wales.

Thirty-three designs have been sent in for the above competition. The announcement of the award is expected shortly. Mr. Edwin T. Hall, F.R.I.B.A., is the assessor.

Public Baths, Finchley.

Mr. H. W. Wills, F.R.I.B.A., the assessor in the above competition, has made the following awards: First, Mr. A. W. S. Cross, F.R.I.B.A.; second, Messrs. Williams and Cox; third, Messrs. Richardson and Gill, F. and A.R.I.B.A.

Fire Station and Firemen's Dwellings, Blackburn.

Eleven designs by local architects have been submitted in the above competition. The assessor, Mr. F. G. Briggs, F.R.I.B.A., is expected to make his award within the next few days.

COMPETITIONS OPEN.

OCTOBER 31.—TOWN PLANNING SCHEME, YORK.—Premiums of £100, £50, and £25 are offered for a town-planning scheme for certain areas in and near York. Particulars, F. W. Spurr, City Engineer, Guildhall, York.

NOVEMBER 1.—ROYAL PALACE AND LAW COURTS, SOFIA.—Particulars, Commercial Intelligence Branch, Board of Trade, Basinghall Street, E.C.

NOVEMBER 29.—BAND PAVILION, FOLKESTONE.—Folkestone Corporation invite designs for a band pavilion to be erected on the face of the West Cliff, at a cost, including approaches, not exceeding £20,000. Mr. Edwin T. Hall, F.R.I.B.A., will act as assessor. Intending competitors should forward deposit of £1 1s. to A. F. Kidson, Town Clerk, Town Clerk's Office, Folkestone, when conditions will be sent.

JANUARY 2.—ROYAL EXCHANGE, MANCHESTER.—The Board of Directors of the Manchester Royal Exchange, Ltd., invite designs for additional new buildings and alterations on the existing Exchange buildings. Mr. James S. Gibson, F.R.I.B.A., will act as assessor. Particulars, instructions, and plans will be forwarded on application to Richard J. Allen, Master, the Manchester Royal Exchange, Ltd., Manchester, accompanied by a cheque for £2 2s.

JANUARY 2.—GOVERNMENT BUILDINGS, OTTAWA, ONTARIO.—Architects are invited to submit sketch designs in a preliminary competition for the erection of departmental and courts buildings from the

designs submitted. Six will be chosen by the assessors, the authors of which will be invited to take part in a final competition, for which the five unsuccessful competitors shall each receive an honorarium of \$3,000. The competition is limited to British subjects practising in the British Empire. Mr. T. E. Collcutt, Mr. J. H. G. Russell, and Mr. J. O. Marchand will act as assessors. Conditions for both competitions may be had on application to R. C. Desrochers, Secretary, Department of Public Works, Ottawa, and at the office of the High Commissioner for Canada, 17, Victoria Street, London. (Summary of conditions, p. 326 in our issue of September 24th.)

FEBRUARY 15.—SAVINGS BANK, VERONA.—The Savings Bank of the City of Verona invite designs for a new building to be erected on an area bounded by the Piazza delle Erbe, Via Camera di Commercio, Via Portici, and Via Mazzini. Premiums: (1st) Lire 30,000 (about £1,200) and (2nd) Lire 15,000 (about £600). The President of the Savings Bank and four others, to be appointed by the Council of Administration, will act as assessors. Applications to be addressed to the seat of the Institution, Via Garibaldi No. 1. (Site plan and summary of conditions, p. 221 of our issue for August 27th.)

NO DATE.—NEW OFFICES FOR THE BOARD OF TRADE, ETC., LONDON.—The Commissioners of H.M. Works and Public Buildings invite preliminary sketch designs in competition for new offices for the Board of Trade, etc., to be erected on a site in Whitehall Gardens, London, S.W. From sketch designs submitted the authors of not more than ten designs will be selected to submit designs in a final competition at an honorarium of £300 each. The assessors are Mr. Reginald Blomfield, M.A. (Oxon), A.R.A., P.R.I.B.A., Mr. John Belcher, R.A., and Sir Aston Webb, C.V.O., C.B., R.A. Conditions of the competition, which is open to all British subjects, with full particulars of the accommodation required and plan of site, can be obtained on application to the Secretary, H.M. Office of Works, etc., Storey's Gate, London, S.W., and deposit of £1 1s. (Site plan and summary in our issue of September 3rd.)

OBITUARY.

Mr. Edward Storey.

The death occurred on October 5th, at his residence, Crosslands, Lancaster, of Mr. Edward Storey, brother of the late Sir Thomas Storey, with whom he was associated in the extensive building undertakings of Messrs. Storey Brothers and Co. Mr. Storey was eighty-four years of age in September last.

Mr. G. E. Ormiston.

Mr. George Edward Ormiston, M.Inst.C.E., late chief engineer, Bombay Port Trust, died at 9, Melbury Road, Kensington, on October 3rd, in his seventieth year. Mr. Ormiston was born on February 8th, 1844, at Glasgow, the youngest child of the late Mr. John Ormiston. He was educated at the Glasgow Academy and was trained as a civil engineer under the late Mr. John MacConochie, M.Inst.C.E., at the Cardiff Docks. He joined the Bombay Port Trust as assistant engineer under his eldest brother, the late Mr. Thomas Ormiston, C.I.E., who was then chief engineer. On the latter's retirement, shortly before his death in 1882, Mr. Ormiston succeeded him and was chief engineer till his retirement in 1891.

SHEFFIELD SOCIETY OF ARCHITECTS.

On Thursday, October 9th, Mr. A. F. Watson delivered his presidential address to the Sheffield Society of Architects and Surveyors. The Society, he said, had now a total membership of 117, including lay members and honorary members. Referring to the new building by-laws for Sheffield, he said that these had at last been approved by the Corporation, after years of consideration, but already difficulties had arisen in connection with their administration, and some of the clauses were already under consideration with a view to their amendment.

"I often think," said Mr. Watson, "that if many officials would pay more attention to the defective materials used in the construction of buildings more good would be done to the community at large than by hampering work which clients intend executing in the best manner and the most modern type of construction possible."

"Whether it is possible to frame by-laws which are simpler or less onerous than those of the Local Government Board it is difficult to say, but they are at present far too drastic."

The long looked-for widening of Exchange Street as a better approach to the markets and the Great Central Station was about to commence, and, when completed, would be a vast improvement, but he could not help thinking the City Council were losing sight of a very necessary requirement which would have to be provided in the future, and he referred to the means of approach to the eastern parts of the city, there being now only two thoroughfares by which traffic could pass from the centre of the city to Tinsley, Brightside, Pitsmoor, or Handsworth districts. It seemed a pity that the making of another main street was not considered in connection with the widening of Exchange Street and Waingate. If the present opportunity of providing it was not taken advantage of it would be a very costly matter when, in the future, it had to be done.

Manchester Society of Architects.

The opening meeting of the above society was held on Wednesday, October 8th, when Mr. John Brooke, F.R.I.B.A., delivered his presidential address, to which we hope to be able to give further attention in a future issue.

Redford Barracks Contract.

The contract for the new infantry barracks at Redford has been secured by Mr. Colin Macandrew, of Lauriston, Edinburgh, at £150,000. Extensive cavalry barracks have been already erected at Redford, which is within easy reach of Edinburgh.

Artificial Marble.

A citizen of Reichenberg, Bohemia, has invented a process for producing a substitute for all classes of marble, including the most highly-prized Italian, Egyptian, and Salzburg marbles. This artificial marble is made partly by hand and partly by machine. The cutting and polishing is done by machinery, the process being already in operation in Vienna, Berlin, Mannheim, and Hamburg, and arrangements have been made for selling the right to produce it in France and Russia, while the sale of patents to a London company for England, Ireland, Scotland, and Wales is about to be consummated.

A MODEL OF SEVENTEENTH-CENTURY WHITEHALL.

A few months ago Lieutenant-Colonel Leatham, the Curator of the Royal United Service Museum, commissioned Mr. John B. Thorp to reconstruct, in model form, the Palace of Whitehall as it appeared at the time of the execution of Charles I. The model, which is now finished, has been presented to the Museum. It has been made to a scale of one hundredth full size, and extends from Scotland Palace on the north to the Bowling Green and King Street on the south, from the Thames on the east to St. James's Park on the west, and covers a space of about 25 sq. ft.

The key plan has been worked out from Fisher's plan of 1680, but many alterations were made from 1648, especially on the west side of the roadway.

The upper view shows the north-west corner of the model, with the Banqueting Hall in the centre. To the left is the entrance to Scotland Palace, and on the right is seen Holbein's Gate, which was erected by Henry VIII., from designs by Holbein the painter. Opposite the hall was the Tilt Yard. The lower view shows a portion of the river front.

Lovers of old London should be greatly interested in the model, as it gives an excellent idea of what Whitehall was like in the early part of the seventeenth century. The long stone gallery facing the Privy Garden, the Cock Pit, Cromwell's House, adjoining the Great Hall, in which some of Shakespeare's plays were read, are all shown, while the river front with its cluster of Tudor buildings and the Privy Stairs have been carefully worked out.

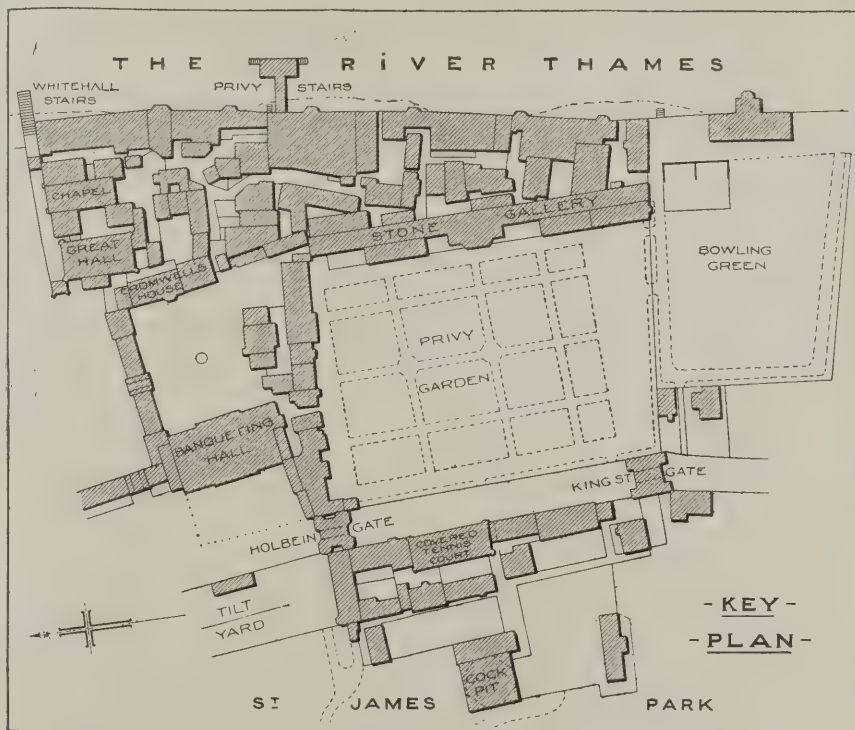
Mr. Thorp, whose well-known models of Old London are now permanently exhibited at the London Museum, has made a special study of the topographical history of the City, and he is now engaged in constructing a large model of the Tower of London as it appeared in the year 1600, which will shortly be seen at one of our leading museums.

UNDERPINNING A STONE RETAINING WALL.

The construction of Lexington Avenue subway, New York City, involved the excavation of a trench about 24 ft. deep through sand on Church Street, where the ground water level was about 12 ft. below the surface of the commencement of the work. Trinity Churchyard has a frontage of 425 ft. on Church Street opposite the excavation, and is at an elevation of 15 ft. above the pavement. The soil here is retained by a massive stone wall with gravity section and a footing about 2 ft. 6 in. below street level. The base of this wall is about 18 ft. from and parallel to the neat line of the subway structure.

The soil is so unstable that it was considered necessary to support the toe of the wall and provide against undermining and loss of material from the rear of the wall before beginning the subway excavation. This was accomplished by underpinning the wall with solid concrete carried down about 10 ft. to ground-water level and supported on cylindrical columns, extending below subgrade and enclosed on the outer side by a line of permanent interlocking steel sheeting to prevent any displacement of the churchyard soil.

Operations were begun by sinking in front of the wall a line of 4 ft. by 5 ft. pits 5 ft. apart in the clear, which were excavated to ground-water level and sheeted



WHITEHALL AS IT APPEARED IN THE REIGN OF CHARLES I.
FROM THE MODEL AND PLAN BY JOHN B. THORP.

with horizontal boards. The centre line of these pits was about 6 in. beyond the face of the wall, so that each pit projected 2 ft. under the wall footing, far enough to permit of the driving there of one or two steel pipes 14 in. in diameter. These pipes were made of light riveted sections 2 ft. long, with telescope joints, driven to a final depth of 2 ft. below subgrade by a 500-lb. cylindrical drop hammer 3 ft. long.

The hammer was operated without special bearings, between three vertical guide rods 5 ft. long, which were rigidly attached to a heavy wooden cap engaging the top of the pipe. The hammer was hoisted by a line carried through a snatch block suspended above the pile, and thence to the capstan head of an electric hoisting engine. The engineman tailed off the

slack and released it to make about ten strokes per minute, thus driving the piles at a maximum rate of from 10 to 20 lin. ft. in one eight-hour shift. As the piles were driven the interior was excavated by a dwarf orange-peel bucket or by a sand auger operated by hand.

Interlocking steel-sheet piling was driven to below subgrade at the rear of the pipe to prevent the possibility of a flow of quicksand after the excavation was begun. The pipes and the bottoms of the pits were concreted, and on them were built brick piers 3 ft. square, wedged up to bearing against the old wall footings to carry the weight of the latter. All the space around the woodwork was concreted and grouted, after which the intermediate spaces between the pits were excavated,

foundation piles driven in them, new piers built, and the concreting and grouting repeated so as to form with the first work a continuous retaining wall supported on column foundation carried below subgrade to an elevation beyond the probability of disturbance.

BOOK NOTICES.

The Law of Building Contracts.

Drawn up with scrupulous care, based on the widest and most intimate practical experience, and published under the sanction of the Royal Institute of British Architects in agreement with the Institute of Builders and the National Federation of Building Trade Employers, the National Form of Building Contract finds general acceptance and adoption. It was therefore a happy idea to annotate it. No form, however, can cover all contingencies, and the authors of the annotations have naturally found much scope for amplifying and modifying as well as explaining and illustrating the conditions of contract. Also, in spite of the most consummately clear-headed drafting, there must be in every legal instrument of any considerable length certain obscurities and ambiguities which need elucidation. Where such points have been interpreted in the law courts the authors give summaries of the decisions. They also append to each clause a very useful explanation of its effect; and they find opportunities for the discussion of many of the vexed questions—such, for instance, as the relationship between architect, contractor, and specialist—that are endemic to the industry. The introduction is not the least valuable part of the book, as it contains many careful definitions, discriminations, or suggestions, as to those matters upon which embarrassments most frequently arise. The judgment, hitherto unreported, in the case of John Barker and Co. v. The Hurlingham Club, in which much light is shed on the question of extras, is included, and a dozen useful forms of notices are added. Written by a barrister and a solicitor who have each had exceptional opportunities for specialising on the subject of building contracts, this legal manual is of unquestionable value and authority.

"The National Form of Building Contract (Annotated and Explained)," together with Suggested Alterations and Amendments to meet Particular Cases, and a Form of Sub-Contract and Suitable Forms of Notices etc., for the use of Building Contractors. By W. Valentine Ball, M.A. Cantab., Barrister-at-Law, and W. H. Hope, Solicitor of the Supreme Court, and Legal Adviser to the Northern Counties Federation of Building Trade Employers. Pages x. + 126. London: The "Local Government Journal," 27a, Farringdon Street, E.C. Price 6s.

Standardised Measurement of Builders' Work.

A standard system of measuring building work has been compiled by the South African Institute of Quantity Surveyors, has been approved by the National Federation of Building Trade Employers of South Africa, and is now published in book form, price 7s. 6d., at Johannesburg. The Public Works Department of South Africa, and other public bodies, having also decided to adopt the system, Mr. J. W. Cowling, F.S.I., the hon. secretary and treasurer of the Institute, anticipates, he informs us, that it will come into general use in South Africa. "Measurement," in this connection, is a very comprehensive term, and therefore the first section of the book gives, under the heading "Preliminary and Sundries," brief directions with regard to such closely relevant matters as conditions of contract,

and the practical details of procedure involved. The preliminary matter is followed by a tabular statement, preceded in each case by special directions, of the method of measuring for each trade, from excavator to painter. Each table or schedule is divided into three compartments, the first being headed "Description of Work," the second "Unit of Measurement," and the third "Special Details." There can be no question of the convenience and economy of the standardisation of measurement, which, faithfully followed, will prevent the confusion and dispute that are inevitable in the absence of such authoritative guidance. It would therefore be difficult to exaggerate the importance of this publication, which substitutes certainty for perplexity, and evolves order out of chaos.

"Standard System of Measuring Builders' Work in South Africa." Compiled and issued by the South African Institute of Quantity Surveyors. Pages xvi. + 70, 6½ ins. by 10 ins., price 7s. 6d. Johannesburg: Printed by the Argus Company, Ltd. (The Offices of the South African Institute of Quantity Surveyors are at 12-13, National Bank Buildings, Church Square, Pretoria.)

A Switchgear Manual.

Switchgear suffers, for the moment, from over-elaboration, and its intricacies demand a great deal of study. That ultimately it will be greatly simplified—in this respect obeying a sort of natural law by which only essentials survive—does not excuse ignorance of present intricacies; and therefore the latest addition to Messrs. Constable's series of "Electrical Installation Manuals,"—"Switchgear, and the Control of Electric Light and Power Circuits"—fulfils a very useful mission in affording a lucid explanation of the several functions of switchgear as at present designed. The manual is copiously illustrated with diagrams, and the explanatory text leaves nothing to be desired.

"Switchgear, and the Control of Electric Light and Power Circuits." By A. G. Collis, A.M.I.E.E. 86 pages, 4½ ins. by 6½ ins., rs. net. London: Constable & Company, Ltd., 10, Orange Street, Leicester Square, W.C.

NEW MUNICIPAL WORKS.

The Local Government Board have held or have decided to hold inquiries into proposed expenditure by public bodies as follows:—Water Supply.—Potterspur Rural District Council, £3,500 (October 14); Sleaford Rural District Council, £2,700, for Heckington (October 15); Croydon Borough Council, £96,000; Marlborough Borough Council, renewing engines and pumps, £2,300 (October 16); Skipton Rural District Council, £1,250 for Cold Coniston (October 17).

Sewerage, Drainage, and Sewage Disposal.—Sutton Coldfield, £2,250 (October 14); Ruislip-Norwood Urban District Council, £2,420 (October 15); Stretford Urban District Council, £7,100; East Westmorland Rural District Council, £1,100 (October 16).

Street Improvement and Public Walks.—Arnold Urban District Council, £1,225 (October 13); Maidenhead Borough Council, £1,750 (October 14); Bognor Urban District Council, £1,983 (October 15); Oswaldtwistle Urban District Council, £1,600 (October 16); Radcliffe Urban District Council, £6,400; Chipping Wycombe, £1,570 (October 17).

Various.—Arnold Urban District Council, burial ground extension, £1,130 (October 13); Barrow-in-Furness Borough Council, library adaptation, inclusive of land, £2,900; Norwich City Council, electricity undertaking, £25,000, widening River Wensum, £5,470 (October 14);

Shipley Urban District Council, housing, £4,935; Buxton Urban District Council, improvement of hot mineral water baths, £4,600 (October 15); Lancing Parish Council, parish hall, £1,250; Maidstone Borough Council, extension of electrical plant, £6,120 (October 16); Bexhill Borough Council, groyning, £4,400 (October 17); Little Woolton Urban District Council, housing, no amount stated (October 23).

A LARGE DERRICK.

A very large structural steel derrick now in use in the construction of an addition to the museum building of the Brooklyn Institute of Arts and Sciences, Brooklyn, New York, designed and built by the Alfred E. Norton Company, of New York City, has a mast of 110 ft. and a boom of 100 ft., with a capacity of 15 tons at the extreme end of the boom. Both mast and boom are divided into three parts, and separate centre pieces for both the boom and the mast have been provided. When the shorter members are substituted for the longer ones regularly employed, the mast length is 86 ft. and the boom length 75 ft., and with these members the derrick has a maximum capacity of 20 tons. Both the mast and the boom can be separated into the three different members and the whole derrick knocked down so as to be shipped complete in one car. The extreme reach and capacity of this derrick make it an exceedingly efficient appliance for use in the construction of large-area buildings.

THE BRITISH FIRE PREVENTION COMMITTEE.

The winter session of the British Fire Prevention Committee will begin on October 15th, when a large reinforced concrete floor, and also some materials intended for fire-resisting partitions, will be subjected to high temperature fire tests at the committee's Regent's Park testing station. The reinforced concrete floor under test will measure 15 ft. by 22 ft., and will be loaded 2½ cwt. per ft. super. and subjected to a four-hour fire test, followed by the application of water.

IMPROVEMENTS TO LUDGATE HILL STATION.

A notable improvement scheme has been undertaken at Ludgate Hill Railway Station, where the high railings surrounding the forecourt are to be replaced by a handsome four-storey building of stone and brick. At the same time, owing to an arrangement made with the City Corporation, a street-widening improvement will be carried out at this spot. The present carriage way has an average width of 46 ft., but under the new scheme this will be increased to between 50 ft. and 60 ft. There will also be a slight addition to the width of the footways. When the present railings are removed their place will be taken by a building 220 ft. long by 32 ft. wide.

The building itself would have been wider and in line with the other buildings in the street but for the presence of the Fleet sewer, which runs under the station yard at this spot. The construction of the foundations will take five months, a large proportion of this time being occupied in the necessary works for protecting the Fleet sewer. The ground floor will be taken up by shops, and the upper floors will be devoted to improved dining, tea, and refreshment rooms.

THE CONDITIONS OF BUILDING AND ENGINEERING CONTRACTS.—III.

Being an Explanation of the Clauses of the General Conditions of Specifications and the Legal Decisions affecting them.

SPECIALLY CONTRIBUTED BY E. J. RIMMER, M.Eng., B.Sc., A.M.Inst.C.E., of Lincoln's Inn and the Northern Circuit, Barrister-at-Law, and KENNETH G. THOMAS, B.A., LL.B. (Cantab.).

(Continued from page 358, No. 978.)

Parenthetical numbers in the text refer to cases noted at the end of each section.

CHAPTER I.

REPRESENTATIONS IN PLANS, SPECIFICATIONS, AND QUANTITIES.

Clauses in the Contract usually are drawn in such a way as to throw upon the Contractors the duty of checking the accuracy of the Plans and Bills of Quantities, and of satisfying themselves that representations made by such documents (e.g. in regard to strata of subsoil, depth of foundation, etc.) are accurate. It is generally provided that the Contractors shall complete the works shown or described in the Plans and Specifications, and shall take no advantage of any omission in either, and that the Contractor shall either take out his own quantities or accept those supplied by the Engineer as an estimate only.

In recent years much prominence has been given to cases in which Contractors finding that the work of construction has proved more difficult and expensive than they anticipated have sued the Building Owner for the additional cost incurred in constructing the work. The grounds upon which such actions have been brought have been either :

- (i) Inaccuracy of the Bill of Quantities.
- (ii) Misrepresentation in the plans, specifications, or other documents.

1. Inaccuracies in Bill of Quantities.

As has already been considered (see Introduction, p. 334 (c)), the Bill of Quantities may or may not form one of the documents containing the terms of the Contract. If it does form such a part, as is the case in "Rate of Payment" contracts, any inaccuracy in favour either of the Contractor or of the Building Owner will be rectified in the final settlement of accounts, as the amount of payment is arrived at by the measurement of the actual work done. In "Lump Sum" contracts, however, the Bill of Quantities forms no part of the contract, which is one simply for the construction of definite work (as depicted by plans and described by Specifications) for a definite lump sum. The Bill of Quantities in such a case is merely an estimate of the amount of work the Contractor will have to do; and if the amount of work is under-estimated, a Contractor who tenders upon such quantities will find himself required to do more work than he anticipated. It is old-established law that a Contractor is not entitled to rely upon the Bill of Quantities as a warranty of the amount of work to be done, and he will have no right of action against either the Building Owner or the Engineer who calculated the Quantities if they prove to be inaccurate. (10) This has been confirmed in a recent case which came before the Court of Appeal. (11) The Contract was a Lump Sum Contract, the quantities set out in the Bill of Quantities were in material and substantial respects insufficient, and the actual quantities required for the work exceeded those set forth. The Master of the Rolls said :—

"In my opinion it is a well-ascertained practice that the Building Owner places before the builder documents specifying the materials on which he is to make his tender. But it is in my opinion equally well understood that a bill of quantities, whether it forms part of the specification or is a separate document, is not intended to be a representation in the sense of being a warranty. It is an estimate which the builder may act on as an honest estimate made by a qualified person, but it is not a warranty. It cannot be pushed beyond an estimate and turned into a contract. . . . The Court below seemed to have been influenced by the argument of apparent hardship. I think the answer to that argument is that it was competent for the builder to make his own estimate, and that if he chose to rely on the architect's estimate he backed his opinion just as much as the building owner did in favour of the architect's capacity to make a correct estimate."

2. *Misrepresentations in Plans, Specifications, or other Documents.*

The plans may depict by drawings not only the work which has to be done, but may seek to represent also the existing state of things before the work is commenced. Thus they may show the levels of the ground and the strata of the subsoil to be excavated.

2. Misrepresentations in Plans, Specifications, or other Documents.

The specifications similarly may describe not only the work to be done but the manner in which it ought to be carried out, and the special existing conditions which will affect the carrying out of the work.

The question with which many recent cases have been concerned is whether the misrepresentation of existing conditions or the omission to represent existing conditions prejudicial to the Contractor give rise to a right of action by the Contractor who acts upon such representation for the pecuniary loss he sustains by so doing.

The law now appears to be well established on this point. Under the usual contract, in which the Building Owner disclaims responsibility for the accuracy of representation in plans, specifications, or other documents, nothing short of a fraudulent representation will entitle the Contractor successfully to claim payment for overcoming unforeseen difficulties or executing a greater amount of work than he anticipated. So recently as 1912 the law upon this point has been contested, and it is therefore wise to consider the authorities in order of date, that it may be understood how the law has become well settled.

1872.—In this case (12) the Building Owners invited Contractors to tender for the execution of certain works according to plans and specifications prepared by the Engineer of the Corporation. The accuracy of the plans was not guaranteed, and the Contractors were warned that they must satisfy themselves as to the nature of the ground through which the foundations were to be carried. Iron caissons were specified to be used in the

construction of the works, but the Contractors found that they would not resist the pressure of the water, and the plan of work had to be altered and the use of caissons abandoned. The Contractors claimed for loss occasioned to them in attempting to use caissons, and contended that the Corporation had warranted that the work could be done by the use of them. The House of Lords held that no such warranty could be implied.

1892.—In this case (13) the specification contained no description and no undertaking in respect of the soil in which a sewer was to be constructed, and it was left to the Contractors who tendered to ascertain for themselves what the nature of the soil was and what difficulty it might present in the course of the construction of the sewers. The ground, which the Contractor had not properly examined when he made the contract, turned out to be so seriously swampy as to make it impossible for him to go on with the contract without serious pecuniary loss. He thereupon abandoned the work. The Court of Appeal held that he was not entitled to do so, and that, in spite of the unforeseen difficulty, he was bound by the Contract to complete the work.

1907.—In this case (14) the plans for certain outfall sewers works showed an existing wall which could be utilised for the purposes of the work extending below water at a certain height below ordnance datum. When the work came to be constructed it was found that the wall did not extend as shown in the plans, and the Contractor was in consequence put to considerable extra expense in the construction of the work. It was alleged by the Contractor that the Building Owner (by his servant) fraudulently misrepresented the structure and position of the wall, and thereby induced the Contractor to enter into the contract. There was the usual clause contained in the contract providing that the Contractor was to satisfy himself as to the levels, character and nature of the existing works, of the nature of the strata, correctness of quantities, etc.

This case turned entirely upon the question of fraud. It confirmed the preceding decisions referred to above, but the House of Lords held that there was some evidence to go to the jury on the question of fraud, though, if no fraud was established, the Contractor could not recover. The evidence of fraud to which the Court referred was several admissions by the Engineer who had prepared the plans that he had doubts as to the exact depth, shape, and character of the construction, and as to whether there was a deliberate design to induce the Contractor to moderate his estimate, to obtain a cheap tender for the work.

1912.—The previous case having been seriously misunderstood it was thought that the negligence or improper conduct by the Engineer in making plans and specifications would enable the Contractor

to recover for damages suffered thereby. This impression has now been quite obliterated by a very recent case (15) decided by the House of Lords.

The facts were as follows:—It was discovered during the progress of the work that the nature of the ground was materially different from that which the plans and a journal of bores represented it to be, and it ultimately appeared that the borings had been taken by men who were unskilled in the work, and that the plans and journal of bores were compiled by the Engineer from notes supplied by the borers. Moreover, in making the plans and preparing the journal, the Engineer had, in several material instances, inserted not what the borers had reported, but what he, the Engineer, had thought they meant. The journal of bores was supplied to the Contractor, but the accuracy thereof was not warranted by the Building Owner.

The House of Lords in delivering judgment pointed out that it was established law, that in order to sustain an action for deceit there must be proof of fraud and nothing less, and that fraud is proved only where it is shown that a false representation has been made (i) knowingly or (ii) without belief in its truth, or (iii) recklessly, careless whether it be true or false. They held that the action of the Engineer in this case fell far short of fraud, on the ground that he "thought he was drawing a sound inference" in interpreting the report of the borers in the manner he did.

A still more recent case (16) further illustrates this point. The Contractors brought an action to recover nearly a million pounds for the additional cost of excavation involved in the construction of a dry dock by reason of the condition of the material to be executed. They based their claim on the misrepresentation of the Building Owners that trial holes had been sunk down to the hard ground. It was found impossible to reach the hard ground, and it transpired that no trial holes had in fact ever been sunk.

The action was brought before Mr. Justice Parker, who found the following facts:

(i) That the Contract drawings contained distinct and unambiguous representations to the effect that timbered trial pits had been sunk down to the hard ground, and that the usual method of timbering the pits—by runners and settings—had been employed.

(ii) That these representations were material—i.e., that they were calculated to induce Contractors of ordinary intelligence and prudence to tender at a less price than they might otherwise have done.

(iii) That the Contractors did in fact rely upon the representations.

(iv) That the representations were untrue.

(v) That certain of the engineers engaged by Building Owners were well aware that the trial pits had not been sunk to the hard ground but only to the level of the dock bottom.

(vi) That the misrepresentation was entirely due to carelessness and inaccuracy, and that none of the persons concerned had any intention or desire to deceive or had knowingly made any misstatement.

Upon these findings of fact the learned Judge, following the decision in the

previous case, held that no fraud had been established, and therefore the Contractors could not recover.

Conclusions.

From the consideration of the foregoing cases it is clear that a prudent Contractor will as far as possible check carefully the accuracy of all representations made to him in Bills of Quantities, Plans, Specifications, or other documents. In regard to matters to which, without excessive expense, he is unable to satisfy himself, he will either take the risk or have the Bill of Quantities in regard to them incorporated into the Contract.

A case (17) of rather different nature is worthy of note under this chapter, though it leaves the law as explained above unaltered. A corporation advertised for tenders, and upon the Contractors attending to examine drawings and specifications they were informed by an Assistant Engineer that the general conditions were the ordinary ones. Upon subsequently reading the conditions the Contractors found that they were unusual, and refused to go on with the work, and sued the Corporation to recover deposits. It was held that they were entitled to do so. Justice Channell said "If the corporation put forward a document of this kind they are bound to give the Contractors an opportunity of seeing it for themselves. Indeed I am inclined to think they are bound to tell them that it contains something unusual."

Cases referred to in the Text.

(10) *Scrivener v. Pask* (1866) L.R.I.C.P. 715.
The architect took out quantities and represented to the builder that they were accurate, upon which the builder tendered, paying the architect for the quantities, and including the cost in his tender price. The quantities were under-estimated, and the Contractor thereby suffered loss. Held, that the architect was not the agent of the Building Owner to take out quantities, and that the Building Owner did not guarantee their accuracy.

(11) *Re Beumrose & Sons* (1902) 18 T.L.R. 443.
In this case, in addition to the facts set out in the text, it was contended on behalf of the Contractor that there was a custom of the building trade that where tenders were invited for the erection of works in accordance with plans and a bill of quantities was provided a person making a tender was entitled to assume the correctness of it. The Arbitrator found that there was such a custom, but the Court of Appeal held that the alleged custom contradicted the terms of the contract, stating that the quantities were not guaranteed accurate.

(12) *Thorn v. Lord Mayor, &c., of London* (1872) L.A.C. 120.

(13) *Bottoms v. York Corporation* (1892) 2 H.B.C. 220.

(14) *Pearson v. Dublin Corporation* (1907) A.C. 351.

(15) *Boyd & Forrest v. Glasgow & S.W. Railway*

(1912) 49 S.L.R. 735

(16) *Aird v. Trajlong Pagar Dock Board* (1912), *Times*

Newspaper, Dec. 22nd, 1912.

(17) *Moss & Co. v. Swansea Corporation* (1910) 74 J.P. 357.

LARGE BUILDING FOUNDATIONS.

The foundations of the new Equitable building, work upon which is now in progress on Lower Broadway, New York City, will be of the cofferdam type. It is estimated that the structure, which is to replace one destroyed by fire in January, 1912, will weigh over 200,000 tons, of which amount approximately 45,000 tons will represent the steel framework. Bedrock was reached 80 ft. below the curb, and on this bedrock the cofferdam, which will form the true middle of the foundation, covering over 49,000 sq. ft., will be built. The cofferdam will consist of a solid concrete wall reinforced by steel rods. On the Broadway side it will extend 167 ft., on the east, or opposite, side 150 ft., on the south side 304 ft., and on the north side 315 ft., or a total of approximately 935 ft. of caissons of steel and concrete 80 ft. long, 6 ft. deep, and of various

widths, according to the requirements of construction.

The estimated weight of the new Equitable building contrasts with 188,500 tons for the new Municipal building, 103,000 tons for the Woolworth building, and 82,500 tons for the Singer building. The 45,000 tons composing the steel framework of the new Equitable building compares with 25,000 tons used in the Woolworth building, 23,000 tons in the Municipal building, 7,000 tons in the Metropolitan building, and 6,100 tons in the Singer building.

HINTS ON SANATORIA DESIGN.

Writing in the "Hospital," a sanatorium superintendent gives some practical advice to architects on the design of sanatoria under the National Insurance Act. Separate huts or chalets, he says, are pleasant for the patient and excellent in the matter of ventilation, but they make attendance a difficult thing and proper discipline very uncertain. All the patients, therefore, must be under one roof, and this is preferably the case even where advanced cases are treated separately in the same institution. There must be a thought-out system of strict separation of the sexes, although the use of a common recreation room, say for one hour in the day, if the room is readily observable, presents no objection, and is in all probability an advantage from the particular point of view. More effectual than any other restraint to the exuberance of architectural fancy, however, is that of expense. It can never be repeated often enough that the tuberculosis problem, which the "Sanatorium Benefit" Section of the Act is designed to solve, is even more an economic than a medical one. That is, if the nation is going really to provide for its consumptives and its scrofulous and crippled children, it must see to it that not even a sixpence is spent unless strictly required. Gifts of elaborate buildings may prove to be Greek gifts, since money cannot be permanently forthcoming for their upkeep.

Paradoxical as it may seem, specially constructed sanatoria are very generally fitted with too many windows. Look at these buildings at any time except the noontide of a midsummer day, and you will find most of the smaller windows shut. Inspect many of the older established private sanatoria and you will find that there are converted private houses, with not more than one window per room, or two per short passage. Yet they can show a record of results quite up to the average. It is probably safe to say that from the number of windows shown in any architect's design a proportion of one-quarter to one-third may be deducted with no harm at all; and, therefore, with great good, because glass costs far more to begin with than brick or corrugated iron, and similarly to keep up (by weekly cleaning) and in repairs. In spite of all patent fasteners, windows blow off or blow in very often in sanatoria, and the joiner's work necessary to replace or reglaze them cannot be got under 7½d. to 9d. an hour.

The next point over which the amateur in sanatorium management goes astray is the provision of balconies. He thinks these an essential, because, he will say, "You can pull the beds out on to them." It should be remembered though, as some of the then air enthusiasts are now coming to see, the question of rest and exercise is an essential too, and the external air has no advantage over the atmosphere of a suitably prepared room with good cross-ventilation.

THE NEW FRONT TO BUCKINGHAM PALACE.

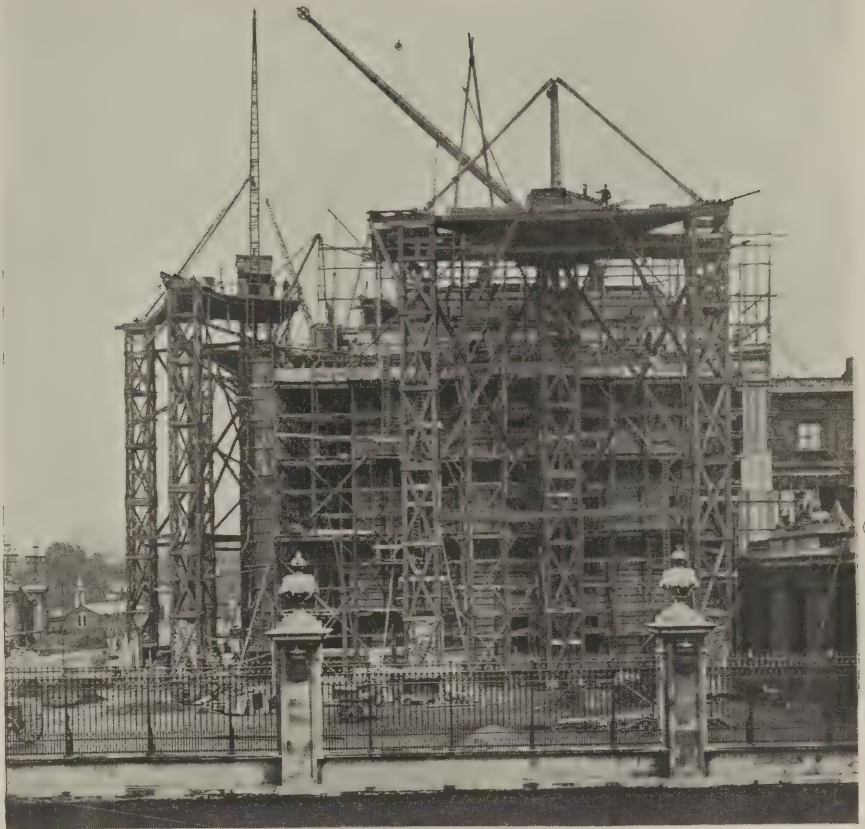
The work of refacing the east front of Buckingham Palace is now nearly completed, but it will not be possible to remove all the scaffold poles and cranes that obscure the new façade before the return of the King and Queen to town. December 1st is the date by which the contractors, Messrs. Leslie and Co., originally engaged to complete the work. They are already considerably in advance of contract time, and it is believed that they will be able to finish the building work and to dismantle the whole of the scaffolding by the end of the present month.

The last piece of stone for the new façade—The Royal Arms, carved in relief, the work of Sir Thomas Brock—was delivered during the past week and will shortly be placed in position over the central archway. Some portions of the new front are already exposed to view, as may be seen from the accompanying photograph of the main elevation, taken a few days ago. The scaffolding on the north return front, shown in our other illustration, is now being dismantled. The scaffolding throughout was secured by "Scaffixer" lashings, which withstood some extraordinary loads in a most satisfactory manner.

A great change is to be observed in the sky-line of the Palace. This was always held to be the most objectionable defect of Blores façade. The central feature, too, with its arched opening, made but a sorry background to the Queen Victoria Memorial. In the new front, a quieter and more dignified outline has been adopted, the building being crowned by a long uninterrupted cornice, which has raised the height sufficiently to hide the old roofs and chimney stacks.

The presence of a large group of sculpture immediately in front of the Palace probably accounts for the sparing use that Sir Aston Webb has made of decorative features in his new design.

Sir Aston's façade, however, is an undoubted improvement on that which it supersedes, though, facing east, it cannot be expected to remain clean for any considerable length of time.

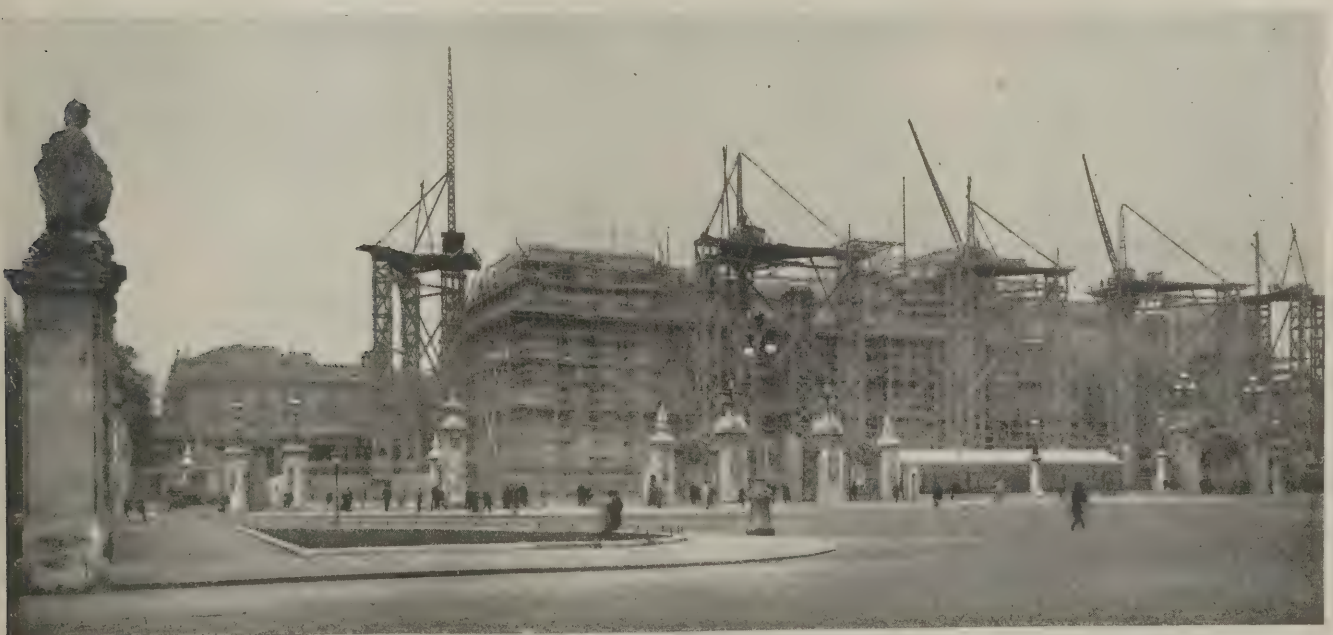


BUCKINGHAM PALACE: VIEW OF NORTH RETURN FRONT.

THE ROYAL WEST OF ENGLAND ACADEMY, BRISTOL.

Bristol Fine Arts Academy, which has just been restored and extended is, by command of the King, to be known henceforth as the Royal West of England Academy. The Academy was founded in 1844, has held exhibitions every year since that time, and has carried on, free of charge, classes for the study from the antique and the living model. The original plans for the

building were prepared by the late Mr. H. Dare Bryan, F.R.I.B.A., but for various reasons they had to be so much remodelled that the Gallery as it now stands is almost wholly the work of Mr. S. S. Reay, F.R.I.B.A. All the rooms are admirably lighted by means of large lanterns, and at night by electric lamps cunningly hidden behind a cornice. The lights shoot up the coved roofs and fall softly on the pictures without causing any shadows. Lunettes by Commendatore Walter Crane are to be fixed in the reception hall.



BUCKINGHAM PALACE: VIEW SHOWING PRESENT CONDITION OF THE NEW FRONT.

WHAT IS THE CHEAPEST PAINT?

SPECIALLY CONTRIBUTED BY ARTHUR SEYMOUR JENNINGS, F.I.B.D.

THE importance to property owners of using a paint which will last a long time and, therefore, prove economical, is often overlooked. Possibly this condition of affairs arises from the ancient custom of including in leases of property in London and elsewhere a clause compelling the lessees to paint the inside of the property every seven years and the outside every three years. Now, a paint which is exposed to the weather on outside work ought to last very much longer than three years. The following remarks, therefore, must be considered as being intended for those who are not bound by any such irksome and foolish clauses. If paint costs as much as 30s. a gallon it may be economical to use, provided that it lasts in good condition for an adequate length of time. By "good condition" is meant no deterioration in the colour, and an ample sufficiency of paint film left to protect the surface to which it was applied.

The reason is not far to seek. In drawing up estimates for painters' work it is usually calculated that approximately the cost of applying the paint is about twice that of the cost of paint itself. This applies to a paint made from ordinary white lead, linseed oil, and turpentine.

Cheap or Expensive Paint.

Let it be supposed that a house owner decides to use cheap paint which will last only three years, and that one ton of this paint, sufficient for the work in hand, costs, say, £10. The cost of applying this would be £20, making a total of £30. At the end of three years the work has to be done again at the same cost, and with similar paint, although, perhaps, fewer coats would be required. At the end of thirty years the sum of £300 or thereabouts will have been expended on paints and painting. Now, let it be supposed that instead of buying the cheapest paint the property owner pays as much as £30 per ton for a paint which lasts ten years. In such a case he would spend £30 for material on three occasions during the thirty years, and £20 on each occasion for labour; for it will be noted that the cost of applying the best paint is not more than that of applying the cheapest. This gives a total expenditure of £150 for the thirty years, as against £300.

Of course, the case cited is a somewhat exaggerated one, as few paints last ten years. On the other hand, the point made will be appreciated, viz., that the most lasting paint is by far the most economical.

It is not proposed in this short article to go into the respective merits of the various pigments used as a paint base, but it may be fairly assumed that oxide of zinc will last about five years and be in good condition for re-painting at the end of that time, white lead three to four years, and oxide of iron two to three years. In determining the value of these paints the cost and the spreading capacity should be both carefully considered; but from what has been said it will be clear that the quality which is of paramount importance is the durability.

Enamels.

To answer the question which heads the article is not difficult if one is content to accept one's own practical experience, added to the result of carefully made inquiries and experiment. Speaking generally,

I believe that for the outside or exposed portion of first-class houses, nothing is cheaper or more economical to use than a really first-class (outside) enamel; and in passing it may be said that this need not necessarily be white, although in certain situations white is very effective. A really good enamel, which costs a guinea a gallon, if skilfully applied on a properly prepared ground—and this ground, by the way, is of the utmost importance—will last for at least seven years. At the end of about two or three years it will have lost a good deal of its lustre, but this in most cases would not be objected to. I have before me while writing some specimens of boards coated with a first-class enamel. These boards have been exposed for over ten years on the roof of a London house. When taken down they were exceedingly dirty, but, on the soot being washed off the surface beneath was found to be in excellent condition. The greater part of the gloss had gone, although there was nothing like a flat or matt surface, but one which was compact and entirely free from any signs of cracking or chipping; in other words, the film of paint formed its function of protecting the wood to which it was applied just as well as when the work was first done. Taking seven years as the life of a good enamel, the reader can easily make calculations on the basis spoken of above, and will then doubtless agree with me that the best paint is, after all, the cheapest.

Ready-mixed and Hand-mixed Paints.

The objection may be advanced that enamel, having such high gloss, is not suitable for use in many situations, and also that it seems to be extravagance to use a guinea enamel on cheap villa and cottage property. The reply to this is that, if the gloss be objected to, the next best thing to use is a really first-class ready-mixed paint, which should, if possible, be obtained direct from the manufacturers, so as to ensure its being newly ground. There are, of course, on the market a great number of different brands of ready-mixed paints—good, bad, and indifferent. Some of the best are composed mainly of about two-thirds white lead, one-third zinc-oxide, mixed with pure linseed oil and turpentine, and in some cases a little varnish, which acts as a binder. These paints do not dry with a very high gloss, but are extremely durable, although not so durable as an enamel. The admixture of pigments and the high quality of the thinners brings about this result. They may be had in a large variety of colours, and many decorators who were formerly bitterly opposed to them now recognise the fact that a paint mixed and ground by modern machinery must be superior to one made in a painter's workshop, where a mere stick or paddle is used for the mixing. Many practical decorators of long experience now use the ready-mixed paints, which are most carefully strained before they are sent out and hence are free from dry particles which form the objectionable "nibs" sometimes seen on painted work.

If the architect or property owner is wedded to white lead it can, of course, be used with success, and if a little copal varnish is added it will distinctly add to the durability.

It will be understood that the above re-

marks refer wholly to outside work. In using a paint which lasts a long time it may be necessary occasionally to wash the work down. This, of course, will cost very much less than applying a fresh coat of paint. It should be understood that flat paint—i.e., one without gloss, cannot be successfully used outside. The absence of the oil takes away the necessary binding material, and hence the durability. Flat blacks, which I have used on grilles, rarely last more than six months.

Paint for Inside Use.

We may next consider what is the cheapest paint for inside use, and it is probable that many readers would not hesitate to say white lead, and they would be entirely wrong. Painted work inside a house is quite different from that outside, for the simple reason that it is not exposed to the destructive influence of the weather. To my mind, it is a deliberate waste of money to use white lead on inside work when there are other white pigments which are cheaper and better in every respect. For true economy I believe there is nothing like enamel for inside work, because it lasts not five or ten years, but twenty if properly treated. A really good enamel ultimately becomes as hard as china, and although it loses some of its gloss after a time just as it would on outside work, it can always be kept clean by being rubbed down with a chamois leather. Here, again, of course, colour can be used if desired. But if the reader will not have enamel he should use lithopone, or zinc sulphide paint. This is by no means new, having been on the market for over twenty years. Increased attention has been directed to it of late, and the consumption is now very large indeed. The merits of lithopone as a paint are its low cost and its remarkable body (or opacity) and spreading quality. The chief virtue of white lead is that it covers so well; that is to say, it has good body; this means that the knots and grains of the woodwork to which it is applied would be obliterated in, say, two coats. Some of the pigments are very deficient in body. Lithopone, however, has even better body than white lead, and a practical test would readily show this.

It may be well at this point to give some figures which will assist in understanding the subject. If we take the cost of 1 cwt. of white lead prepared ready for use at 38s., the cost of zinc oxide prepared in the same way would be 48s., and of lithopone 32s. In considering these figures, however, we have to remember that a hundredweight of white lead when prepared in the shape of paint will cover 400 sq. yards, while zinc oxide will cover 500 sq. yards, and lithopone about the same. The cost of material (only), then, for 100 sq. yards per coat will work out as follows: White lead 9s. 6d., zinc oxide 9s. 8d., lithopone 6s. 10d. A good enamel will cover from 75 to 80 sq. yards per gallon, the undercoating of which (two coats must at least be given) must be allowed for at the rate of about 1½d. per sq. yard. The above prices are at least 10 per cent. above those now current, so that they may be safely taken as a guide.

Paints and Preservatives for Outbuildings.

There is one exception to the advice given above, and that is paint intended for barns or outbuildings, where appear-

nce is of little or no importance. The custom is often to paint such buildings with oxide of low grade called "purple brown," and on fences to put on tar very lavishly. I consider both methods objectionable. For new barns, or those which have not been previously painted, a wood preservative such as Solignum or "Carbo-lineum Avenarius" would give the best results and last very much longer than the oxide. In cases where great economy is necessary, tar thinned with petroleum spirit, sometimes called turpentine substitute, can be employed. This is very cheap, and is, as a matter of fact, equal for most purposes to genuine turpentine. The same method may be followed in dealing with new fences. If buildings are already painted another method must be employed. Red oxide, thinned with boiled oil and turpentine substitute, makes a cheap and economical paint, and, if wished to cheapen it further, 1 cwt. of oil putty to each seven pounds of oxide may be used. These should be broken up together and thinned for use with petroleum spirit. In this case the cost of labour is not of importance, as the farm labourers are often employed to do the painting in their spare time.

NEWS ITEMS.

An Appointment.

Mr. Edwin Seward, F.R.I.B.A., has been appointed architect to the Llandough Hospital, Cardiff.

Extensions to Wood Green Town Hall.

Additions and extensions to Wood Green Town Hall have been carried out, from the designs of the council's surveyor, at a cost of £7,718.

Workmen's Cottages, Chelmsford.

The 106 workmen's cottages which the Chelmsford (Essex) Town Council are building to complete their scheme of 142 houses, will cost about £207 each.

New School at Doncaster.

A new technical school, designed by Messrs. W. P. Schofield, A.R.I.B.A., and A. B. Berry, of Leeds, and to cost £14,000, is being built at Doncaster.

A Large West-End Hotel.

The new Lyons hotel now in course of erection at Piccadilly Circus is to be opened in 1914. It will contain 1,000 bedrooms, and is estimated to cost over £1,000,000.

Memorial to an Archaeologist.

A memorial to the late Mr. John Parker, a well-known Buckinghamshire historian and archaeologist, has been placed in the chancel of the Parish Church, High Wycombe.

Sidmouth Housing Enquiry.

An enquiry by the L.G.B. has been held at Sidmouth into the application of the Urban District Council for sanction to borrow £11,300 for the purchase of land and the erection of working-class dwellings.

Mammoth Hotel for New York.

"The largest hotel in the world" is to be erected in Times Square, New York, at a cost of £2,500,000. It will be twenty-four storeys high, and will contain 1,800 rooms. £750,000 has already been paid for the site.

Balbus Betrayed.

Mr. R. H. Forster, F.S.A., who has superintended the excavations at Corstopitum (Corbridge) during the past year, states that the buildings unearthed during

that period include "some of the most imposing relics of Roman Britain, as well as some of the worst walls ever put together by human hands."

New Hospital, Scorton.

At a cost of £12,000, a new hospital, accommodating 200 patients and thirty brothers and attendants, has been built at Scorton, near Darlington, for the Community of St. John of God, from the designs of Mr. James Hart, of London.

Garden Suburb at Greenock.

Six new cottages, the first instalment of a garden suburb scheme promoted in the east end of Greenock by Greenock Garden Suburbs Tenants, Ltd., have been formally opened. The cottages, erected on the co-partnership principle, are of three and four apartments, with bathrooms and sculleries and plots in front and gardens at the back.

Chair of Civil Engineering, Glasgow.

The King has been pleased to approve the appointment of Professor John Dewar Cormack, D.Sc., M.Inst.C.E., M.I.Mech.E., Professor of Engineering in University College, London, to the Chair of Civil Engineering and Mechanics in the University of Glasgow, vacant by the resignation of Professor Barr.

New Borings near St. Paul's.

In order to ascertain the extent to which the draining away of the water in the district has affected the foundations of St. Paul's Cathedral, borings are being conducted, with the consent of the Postmaster-General, on the site of the old General Post Office by the Dean and Chapter. Grouting is to be undertaken in order to see whether in this way the shifting of the sand can be checked.

World's Longest Bridge.

It seems probable that next year a beginning will be made with the construction of the railway bridge between the isle of Rugen, in the Baltic, and the mainland. This will be the very longest bridge, exceeding even that over Hohango, with its 3,580 yards. The cost of this great engineering work is not, however, expected to amount to more than £1,000,000, or less than a third of that of the Forth Bridge.

Eccles Planning and Housing Scheme.

Eccles Town Council have decided to acquire for a scheme of town-planning, and re-housing a large area between Eccles Cross and the Town Hall and the frontage to the Manchester Ship Canal. In planning the demolished area, the Council will probably construct a new road from the Canal to Eccles Cross, which would give direct access to the main roads to Liverpool, Wigan, Bolton, and the north.

Institute of Marine Engineers' New Building.

The Lord Mayor, on October 29th, is to lay the foundation stone of the new building for the Institute of Marine Engineers, which is to occupy an island site on Tower Hill. The main elevations will be built in Portland stone, and the principal front facing Tower Hill Gardens. Mr. Victor Wilkins, of 12, York Buildings, Adelphi, is the architect. On the sub-ground floor offices for letting purposes, having a separate entrance, have been arranged. On the ground floor will be the main entrance to the Institute, the secretary's room, the writing room, and the library. On the first floor will be a lecture hall to accommodate 200 persons, a smoking room, and a retiring room. The second floor is devoted to the members' billiard-room, and the third floor is taken up by the care-

taker's quarters. Lavatory accommodation is provided on every floor. It is expected that the buildings will be completed by April next. Messrs. Higgs and Hill, Ltd., are the builders.

Changes of Address.

The British Ceresit Waterproofing Co., Ltd., have removed to larger and more convenient offices at 100, Victoria Street, Westminster.

Messrs. James Cormack and Sons, Ltd., heating and ventilating engineers, have removed from Eccleston Street to Caxton House, Westminster. Telegraphic address and telephone number remain as heretofore—"Ceeandess," London, and Victoria 3234.

A Northumberland Housing Experiment.

A new railway line, for passengers and goods, from Ponteland, Northumberland, to the Darras Hall estate, more than a mile distant, from Ponteland, has just been opened. Darras Hall estate, comprising 1,015 acres, was bought in 1907 by the representatives of allottees, among whom it was divided in parcels of about five acres each. Some eight miles of roads have been constructed, the land has been fenced, sewers and water have been laid, and provision has been made for lighting the estate by electricity. The estate is the sixth bought and laid out by the Northern Allotments Society, who initiated the project some five-and-twenty years ago. The trust deed stipulates that not more than four houses are to be built to the acre.

New Buildings, Somerville College, Oxford.

The new Somerville College buildings, Oxford, which have been erected from the design of Mr. Edmond Fisher, are in the Georgian style, in red brick, roofed with Corfestone tiles, and consist of the Maitland Hall, containing the dining hall, 70 ft. by 35 ft., with offices and common rooms below it, and of a residential block with accommodation for two tutors and twenty students. The two buildings are connected by a loggia and terrace from which a good view of the garden is obtained. The dining hall has been panelled and floored with oak as a memorial to Miss Agnes Maitland, Principal of the College from 1889 to 1908. The whole of the work has been carried out by Messrs. S. Hutchins and Sons, of Oxford.

St. John's Gate, Clerkenwell.

A model in sterling silver of St. John's Gate, Clerkenwell, having been wrought to the order of the Natal Centre of the St. John Ambulance Association, as a trophy to be won in competition by ambulance workers, the occasion has been taken for the issue of an illustrated booklet describing not only the model but the venerable gate itself. The gate is built of brick, with a facing of Kentish ragstone. On the north side are three shields bearing the arms of the order and of Grand Prior Sir Thomas Docwra, the builder of the gate; and the south face carries a series of five shields, unveiled in 1893 by King Edward VII. when Prince of Wales and Grand Prior, as a memorial to his eldest son, the Duke of Clarence, a former Sub-Prior. The present structure was erected in 1504, on the site of an earlier gate. For a period from 1731 Edward Cave used the gate as the printing and publishing office of the "Gentleman's Magazine," and it was here that David Garrick gave his first London performance—to Cave's work-people, in the hall above the gate. The booklet recalling these particulars is issued by Messrs. Johnson, Walker, and Tolhurst, 80, Aldersgate Street, London.

NEW BUILDINGS AT CAMBRIDGE.

During the last academic year at Cambridge notable additions have been made to the University buildings, and Emmanuel College has erected a spacious new court. The large extension, which practically doubles the accommodation of the School of Agriculture, is now nearly finished. The architect is Mr. Arnold Mitchell, and the building is designed to accommodate institutions for research in plant breeding and animal nutrition which have been founded under the auspices of the Development Commissioners. The cost of the building has been defrayed by Government grants.

To the east of the School of Agriculture a large laboratory destined to accommodate physiology is now in part reaching its final stage. For the last year that portion of it which houses the Department of Psychology has been in use. The part now approaching completion will not be large enough to house completely the Department of Physiology; for there is, to begin with, no accommodation of any kind for biochemistry, a rapidly growing subject, due provision for which is one of the most pressing needs of the science school. Further, the funds at the disposal of the Building Syndicate have been insufficient to enable them to provide lecture rooms; and although, owing to the generosity of the Drapers' Company, who have defrayed the cost of the laboratory, accommodation both for teaching and for research is on a liberal scale, the teaching will necessarily be hampered by the fact that the lectures will have to be given (as they have been in the past) in the lecture rooms on the old Botanic Garden site. The architect is Sir T. G. Jackson.

The first portion of the School of Forestry is also now approaching completion. Although inadequate for the full development of the department (says a correspondent of "The Times"), it will at any rate be a great improvement on the accommodation at present provided in Free School Lane. The architect for the Forestry Building is Mr. William C. Marshall.

During the last twelve months the archaeologists have been busy moving the ethnological collections from the old galleries in Little St. Mary's Lane into the new museum at the corner of Tennis Court Road; and it has fortunately been found possible to extend the Museum of Ethnology so as to provide rooms for the Curator and some of the other officials connected with this subject. On the other side of Cambridge, on the Observatory grounds, new buildings have been springing up in connection with Solar Physics; and in the near neighbourhood a house and laboratories for the use of the recently-elected Balfour Professor of Biology have been erected—and were very nearly burnt down last summer by an ardent Suffragette.

A very notable addition to the collegiate buildings in Cambridge is the new court which Emmanuel has built on the north side of Emmanuel Street. The architect is Mr. Leonard Stokes, who, like Dr. Caius, has kept his court open towards the south, the building forming three sides of a square. Sixty sets of undergraduates' rooms will be provided, and two sets for Fellows. On the west the building is low, and consists of a porter's lodge and cloister, the cloister leading to a subway under Emmanuel Street which connects with the older buildings of the college. A large bicycle shed and a number of bath-

rooms form part of this wing. The centre of the court will be occupied by a sunken grass oval surrounded by pavement. The building is in white stone and has a dignified, quiet appearance.

TRADE AND CRAFT.

New Ventilating Contract.

The New Institute, Maltby, is being ventilated by means of Shorlands' patent exhaust roof and special inlet ventilators by Messrs. E. H. Shorland and Brother, Ltd., of Failsworth, Manchester.

The Efficiency of Ceresit.

Further testimony to the efficiency of "Ceresit" as a waterproofer was given recently by Messrs. Hinson and Co., builders and contractors, of Stamford. A railway cart weighing machine pit, although apparently well concreted, was invariably found to be partly filled with water, and a pump had to be kept in operation every day. Messrs. Hinson and Co. discovered that the trouble was due to a number of springs, which bubbled up through the bottom of the pit. By using "Ceresit" the water was effectively held back and no further inconvenience has since been experienced from this source.

Varnish Stain on the "Ideal Home" Cottage.

An interesting feature of the "Daily Mail" cottage, now on view at the Ideal Home Exhibition at Olympia, is the Lignite oil varnish stain, matt finish, which is used on all the interior woodwork. It is the product of the well-known varnish and enamel manufacturers, Messrs. Robert Ingham Clark and Co., Ltd., of Caxton House, Westminster. This stain is also made with a glossy finish, to match exactly various kinds of wood, such as mahogany, walnut, oak, etc., so that when used on deal or soft wood it produces the exact appearance of the better-class timber. It is applied in the ordinary way with a brush, thus enabling the work of staining and varnishing to be carried out in one operation, and is useful for renovating furniture.

PROJECTED NEW WORKS.

New Fire Station, Leyton.

Leyton Urban Council have decided to build a new fire station at Harrow Green.

Town-planning Scheme for Birmingham.

The Road Board has made a grant of £20,000 towards the construction of part of the ring road which is to encircle Birmingham.

Swansea-Merthyr Asylum.

The constructional drawings for the new Swansea and Merthyr Asylum have been approved by the Home Secretary. Mr. Hine is the architect.

Technical College for Middlesbrough.

Middlesbrough Education Committee are considering the desirability of erecting a new technical college at an estimated cost of £30,000.

Town-planning Scheme, Manchester.

A Local Government Board inquiry has been held into the application of Manchester City Council for authority to prepare a town-planning scheme comprising some 3,200 acres of land.

New Infirmary at Tulse Hill.

A scheme for the erection of a new infirmary at Tulse Hill at a cost of £200,000 is under the consideration of the Lambeth Guardians, whose present institutions are in a very crowded condition.

Proposed Transporter Bridge Over the Mersey.

Birkenhead Chamber of Commerce have raised the question of the provision of a transporter bridge between Liverpool and Birkenhead. The bridge would have to be of great size, and, it is computed, at least a mile and a half in length.

Open-air Bath Scheme, Southport.

Southport Corporation have passed a new scheme for an open-air bath adjoining the children's playground, to the north of the pier. The length of the proposed new bath is to be about 400 ft., and its width about 200 ft., while the depth at the end Promenade end will be 2 ft., and at the seaward end about 6 ft. 6 in.

HUNSTANTON NEW PROMENADE.

The illustration here given shows the new promenade, with shelters underneath, erected near the pier at Hunstanton. It was designed by and carried out under the direction of Mr. J. C. Walker, the town surveyor. It has been built entirely of reinforced concrete, without a steel or timber beam or similar support. The shelters are 200 ft. long and 16 ft. wide, the reinforcement being steel rods and Lock-woven Mesh, supplied by G. F. West and Co., Caxton House, Westminster. There are five 40-ft. spans, each span being subdivided into four divisions. The roof to the shelters, which forms the promenade, was constructed of 6-in. concrete, of which the first 5 in. were proportioned 4 to 1, the aggregate being all beach shingle carefully washed and graded, whilst the top was finished off with three parts $\frac{1}{4}$ -in. granite chippings graded down to dust to 1 of cement and 5 lb. of Pudlo to every 100 lb. of cement. It was suggested at first that a coating of asphalt should be given on the top, the shelters underneath necessitating that the promenade or roof should be absolutely waterproof, but it was decided to finish off in concrete with the addition of the waterproofing powder, Pudlo.



HUNSTANTON NEW PROMENADE.

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On Prettiness.

FEW criticisms of an important building are so galling to its architect as that which takes the form of an accusation of prettiness. There are faults that may spring from ignorance or errors of judgment; the detail may be unscholarly, the materials ill-chosen, or the design may fail to express the character that is appropriate to its purpose; but, however patent these shortcomings may be, they are seldom made the subject of such contemptuous comment as is the vice of prettiness, which seems to indicate an incurable smallness of soul.

We are dealing with a quality that does not altogether defy description and analysis. It may be said to consist in an assertion of the parts at the expense of the whole, but in this case the parts are themselves beautiful. Thus it is not the lowest kind of artistic depravity, for one can see many instances of buildings, streets, and cities in which the parts are not only improperly related to the whole, but are themselves exceedingly ugly. In spite of that, however, prettiness sometimes causes us greater irritation than the utmost crudeness in design, or even the entire absence of it, because our first glance leads us to expect an excellence which we afterwards find to be lacking. It can be exemplified in things of the most diverse character—in ornament, in the composition of a façade, or in the configuration of a large group of buildings. To see a street that is merely pretty, comprising houses that are merely pretty—whose decoration is merely pretty—this is the most nauseating æsthetic experience that is at all possible. Here we have prettiness raised to the third power, prettiness cubed, as it were.

Ornament has this attribute of prettiness when it is composed of features whose interest exceeds that of its main scheme. In this case there is a kind of spottiness which, nevertheless, appeals to people whose æsthetic sense has not been trained; for such beauty as belongs to it can readily be apprehended without the employment of any critical faculty. Everybody knows the patterns that consist of a spray of flowers here and a spray of flowers there, and perhaps a little scroll somewhere else; they can be seen in embroidery, carpets, wall-paper, and on plates and dishes. The Chinese dragon pattern, though it appears to be just as discreet as these, does not really belong to their class, for the interest of the separate pieces of the dragon never exceeds that of the complete design, which is an exceedingly beautiful one and a subtle composition.

A scrutiny of Greek motifs of decoration reveals the fact that they are free from the defect of prettiness. Comprising, as they do, forms well balanced and closely knit, in which variety has not been attained at the expense of organic unity, they express the genius and the clarity of mind of the men who created them. There is neither dulness nor confusion. The wave ornament, the fret (which is merely a rectangular edition of it), and the guilloche are perhaps the best examples of patterns that consist, as all good patterns must, in orderly repetition of points of interest which are themselves well bound together. In fact, they

have so much vitality that it is a matter of great difficulty to break them off gracefully, to find adequate terminations to them. If we examine the various leaf ornaments, the scale motifs, or the egg and dart moulding, we find in each case that they cannot be broken off at random; if we steer clear of the dart we cut into the egg, and if we avoid the anthemion we cut into the scroll that joins it to its neighbour. The lowest motif in the hierarchy is the bead and reel; this is on the verge of being prosaic, and for that reason it was always kept very small. The desire to introduce the quality of continuity is not peculiar to the Greeks; the Italian scroll and the Celtic type of decoration are both evidence of it, and the wave form itself has been used by savage tribes all over the world; in fact, it is a misnomer to call it Greek, for it is cosmopolitan.

Quite beautiful ornament, however, when misapplied can make a façade look pretty. The theory according to which a building is merely a background for sculpture and ornament is responsible for a great deal of what is trivial in the work of the Gothic Revival. But this fault is not confined to architects who adopt the mediæval manner; there are many who degrade the noble Classic forms into a vehicle for mere prettiness. When an uncritical person makes use of the most excellent traditional motifs, they seem to lose their virtue and to take on a meretricious air. If a very elaborate rosette is inserted within each fold of the wave motif, the fatal change has already taken place. The Erechtheion doorway is the richest in the world, and is suited to its original position; but when it is multiplied by three, as it is in the west front of St. Pancras Church, the effect can only be described as sugary.

Whole streets and other large aggregations of buildings are liable to a similar corruption. The street can have the most exquisite façades adorned with faultless details and yet be devoid of dignity, because the individual buildings have asserted themselves at its expense. In the garden suburbs, too, there is often a repetition of elements that cannot legitimately be repeated. Everybody admires the quaint little cottage on the country side, but it is an unbearable thought that this type of habitation should be multiplied indefinitely to form whole towns and cities. It is just as if we were asked to abstain from all meat and substantial food and subsist upon a diet of flummery, chocolate éclairs, and cream puffs.

In the past one of the chief causes of prettiness was the craftsman, who was vested with an authority to which he was not by right entitled, an authority that resulted in the gross neglect of spiritual values. Many Gothic designs suffer because of this. Owing to economic circumstances, however, and the conditions of modern construction, the craftsman no longer threatens us; modern architects must beware of the draughtsman lest he acquire a like dominance. He, too, may exalt the claims of mere manual dexterity. The prettiest buildings that are erected to-day and the most over-decorated are the work of men who wield a facile pencil.

A. T. E.

The Land Inquiry Report.

LAST week the first report of the Land Inquiry Committee was published; and, being regarded as a political document, it was of course promptly lauded to the skies by the adherents of one party, and consigned to perdition by those of the other. With its political aspects we have nothing whatever to do; nor is it expedient for the moment to examine in detail the suggestion for the establishment of a land court and of wages and rent tribunals. Of more immediate concern are the recommendations with regard to labourers' cottages. There is, it is stated in the report, a deficiency of cottage accommodation in 1,396 parishes in England and Wales; the so-called law of supply and demand being in abeyance mainly because the labourers are too poor to pay a "commercial rent"—that is, a rent which would save the cottage builder from absolute loss. It is a very curious situation, and one that apparently affords a just occasion for some sort of State intervention. Among the proposals put forward in the report the three that possess most practical interest from our point of view are—that it should be made a definite statutory duty of every rural district council to provide a cottage for every person permanently employed in a rural district; that where local authorities fail of their duty in the provision of dwellings, the central authority should have power to take the matter in hand; and that better facilities for building cottages should be given to public utility societies, who, it is suggested, should be able to obtain loans up to at least eighty per cent. of the value of cottages and land, at the minimum rate of interest at which the State can afford to lend, and with an extended period—to sixty years—of repayment. So far from being surprisingly novel, these proposals have been the familiar commonplaces of the cottage controversy from its inception. Now that they are invested with quasi-official sanction they will command more serious attention than has been hitherto accorded them. Those 120,000 cottages will certainly have to be built, and that right soon, if the nation's credit for humanity and decency is to be redeemed. We take leave to urge, well in advance of actual operations, that design shall be duly taken into account; for continued neglect of the rural housing problem would not be much more criminal than defacing the kingdom with a hundred and twenty thousand mean and ugly hovels of the baser sort. We are hoping that so bold a scheme will be carried out in the spirit of its conception.

Cloth Fair and the Common Council.

A CURIOUSLY significant reference to the Royal Institute of British Architects was made at the meeting of the City of London Court of Common Council which was held last week. The Improvements and Finance Committee having reported that, after conferring with the Streets and Sanitary Committees, they had come to the conclusion that it was not desirable to take any steps for closing Back Passage, Cloth Fair, or for carrying out any large scheme of improvement there until the Sanitary Committee had reported to the Court upon the condition of the various properties in the neighbourhood, one of the Deputies complained vigorously of the reluctance to take action. "When," said the Deputy, "it was proposed to make a great improvement in the neighbourhood, letters were sent by the Royal Institute of British Architects, making all sorts of suggestions," and "the Society of Antiquarians [*sic*] stepped in and exclaimed, 'There are old buildings there, and you must spare the buildings whatever happens.'" It is to be observed that the Deputy did not say one single word against this outside interference. Clearly, denunciation would have been superfluous. It was sufficient to state the monstrous fact. This, we fear, is only too typical an instance of the resentment by

the civic mind of advice for which it ought to be grateful. The fate of Cloth Fair is now in the hands of the Sanitary Committee—a title that is sufficiently ominous for antiquarianism! But surely there is no necessary antagonism between sanitation and sentiment. If the Jacobean houses in Cloth Fair are worth preserving—and it must be admitted that their interest is more antiquarian than architectural—surely it would be an easy matter to render them sound and sanitary. The plain fact is, however, that extreme antiquarian zeal has its counterpoise in the average business man's rooted dislike of any building that does not look completely up-to-date; and the peaked gables "that did so please Eliza and our James" certainly present a world-weary and forlorn appearance amidst the straight-lined terra-cotta-fronted warehouses that have sprung up around them.

The Plumbers' Registration Movement.

MANKIND being gregarious, guilds and corporations are by way of being natural phenomena, although in the mere matter of organisation details they are purely artificial. They are but an extension of an almost universal principle, of which the family may be regarded as the unit, and the clan as an offshoot. That corporate feeling is rapidly gathering strength is evident in the current trade-union movement for eliminating the non-unionist, as well as in the steadfast endeavour to secure registration for architects and for plumbers. At the annual congress of the General Council of the National Registration of Plumbers, which was held last week in Glasgow, it was recalled by Mr. H. D. Searles-Wood, F.R.I.B.A., that the Council had been unsuccessful in its attempts to get Parliament to make the registration of plumbers compulsory. It would not be difficult to persuade Parliament that none but properly qualified plumbers should be allowed to do work upon the soundness of which the public health so largely depends, were it not for the fierce opposition of the hardware trade, whose case, roughly stated, seems to be that the registration of plumbers would affect the hardware interest very seriously in two ways. It would make plumbing more costly, so that less of it would be done, and it would take all sanitary work out of the hands of the ironmongers, who at present derive a good deal of profit from their ability to supply the labour for fixing the goods they sell—work for which, by their greater familiarity with the goods, they claim, the men they send out are even better qualified than are plumbers. As for the attitude of the general public, it is to be feared that the prospect of having to pay more for the work, and of being debarred from doing little jobs themselves, such as screwing in a new scullery tap, does not inspire them with much enthusiasm for the registration of plumbers. It is obvious, therefore, that the registration movement, excellent as it is in parts, puts too many interests on the defensive to warrant much hope of early success. Some means of investing the movement with a less militant or a less exclusive aspect should be found in order to conciliate prejudice. We are, of course, in full and cordial agreement with the desire to see plumbing work entrusted to none but properly qualified men; but monopoly by enactment is a delicate position to create. Hitherto it has been confined to the professions. If it is to be extended to the crafts, where is the line to be drawn?

*** So great has been the demand for copies of this Journal in its new form, that the issues of October 1st and 8th have gone completely out of print, and news-agents have been unable to comply with the numerous applications made to them. A little later, however, the Publisher may be receiving some copies as "returns," and readers who desire to secure them should make direct application at 6, Great New Street, Fetter Lane, E.C.

THE PLATES.

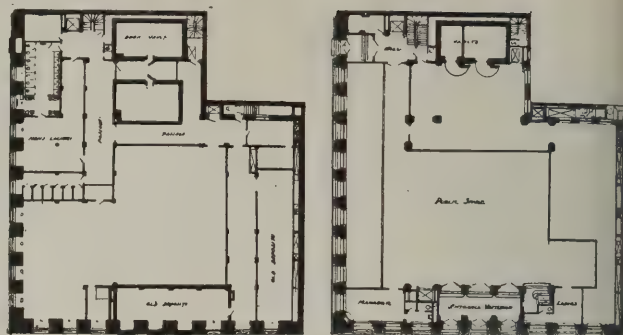
The Bank of Toronto.

THE new building for the Bank of Toronto which we illustrate this week shows the fine class of work now being carried out in Canada. The name of Messrs. Carrère and Hastings has long been associated with architectural design of the highest standard, but we do not think that any of their recent commercial buildings excel this one for grandeur of effect. The order is used in a most vigorous way, and the building is altogether one which fully expresses the importance of the large business corporation for which it has been erected.

Rising four stories above the ground, the ensemble of the new bank presents an appearance of great stability and richness. The exterior is notable for the unity of its composition, a fine effect of continuity in the design being obtained by the subordination of the entrances, which themselves are very richly treated. Over the middle entrance, on the main façade, are carved the civic arms of Toronto, together with the figures of an Indian and Britannia. Beneath are the words "Intelligence, Industry, and Integrity." The group to the left is symbolical of the agricultural pursuits of Canada. Between figures which carry grain, fruit, and flowers is a shield containing a plough, a scythe, a beehive, and a rooster. To the right, mechanical pursuits are symbolised, the scientific shield separating two figures holding firebrands, the word "Enterprise" being carved beneath. The exterior is built throughout of Tennessee pink marble.

Coombe Court, Kingston Hill, Surrey.

The plan and the photograph show an addition to the above for the Right Hon. the Marquis of Ripon, G.C.V.O. The chief feature is the great gallery, which is 20 ft. high and is decorated in oak in the style

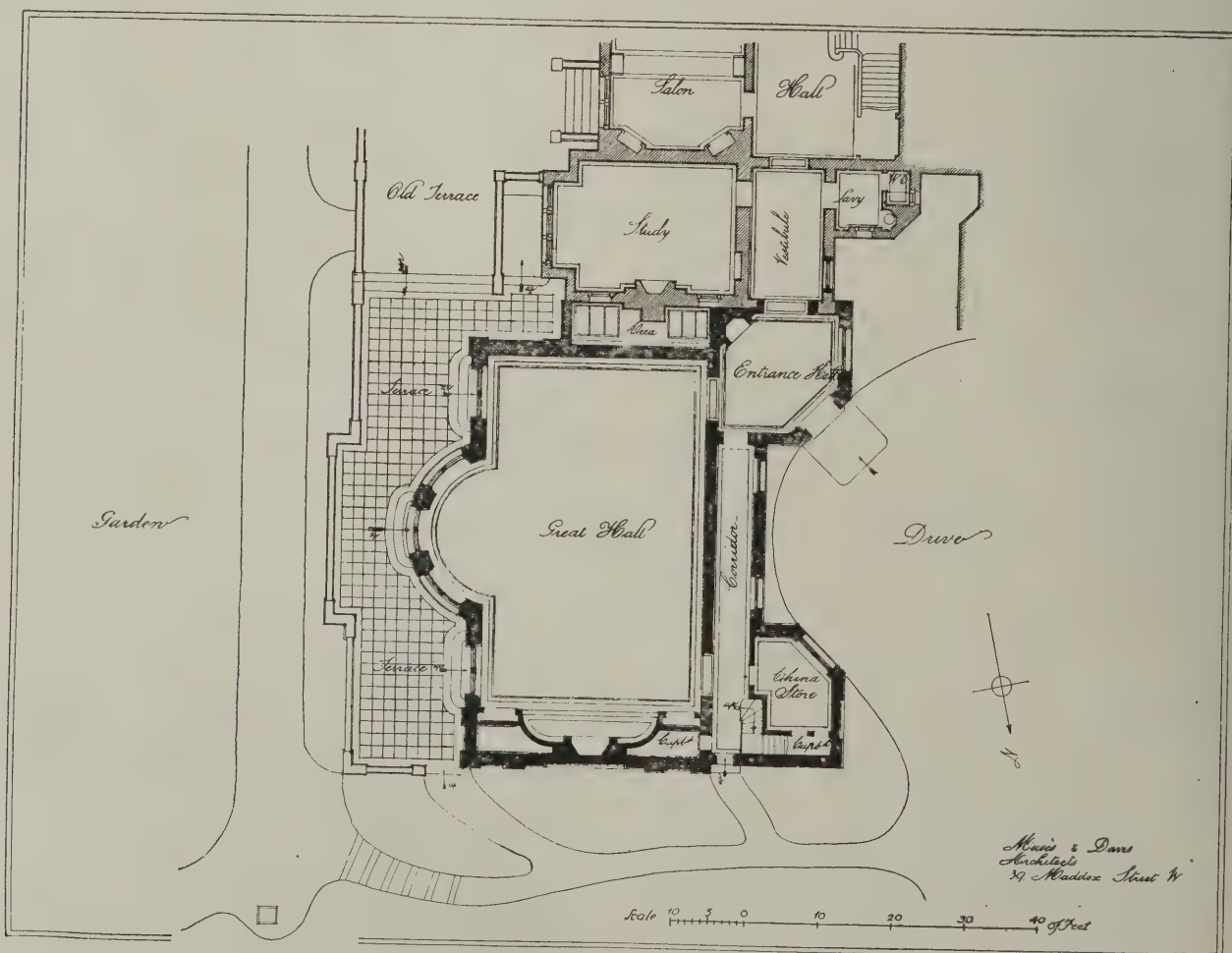


THE BANK OF TORONTO, TORONTO: BASEMENT AND GROUND-FLOOR PLANS.

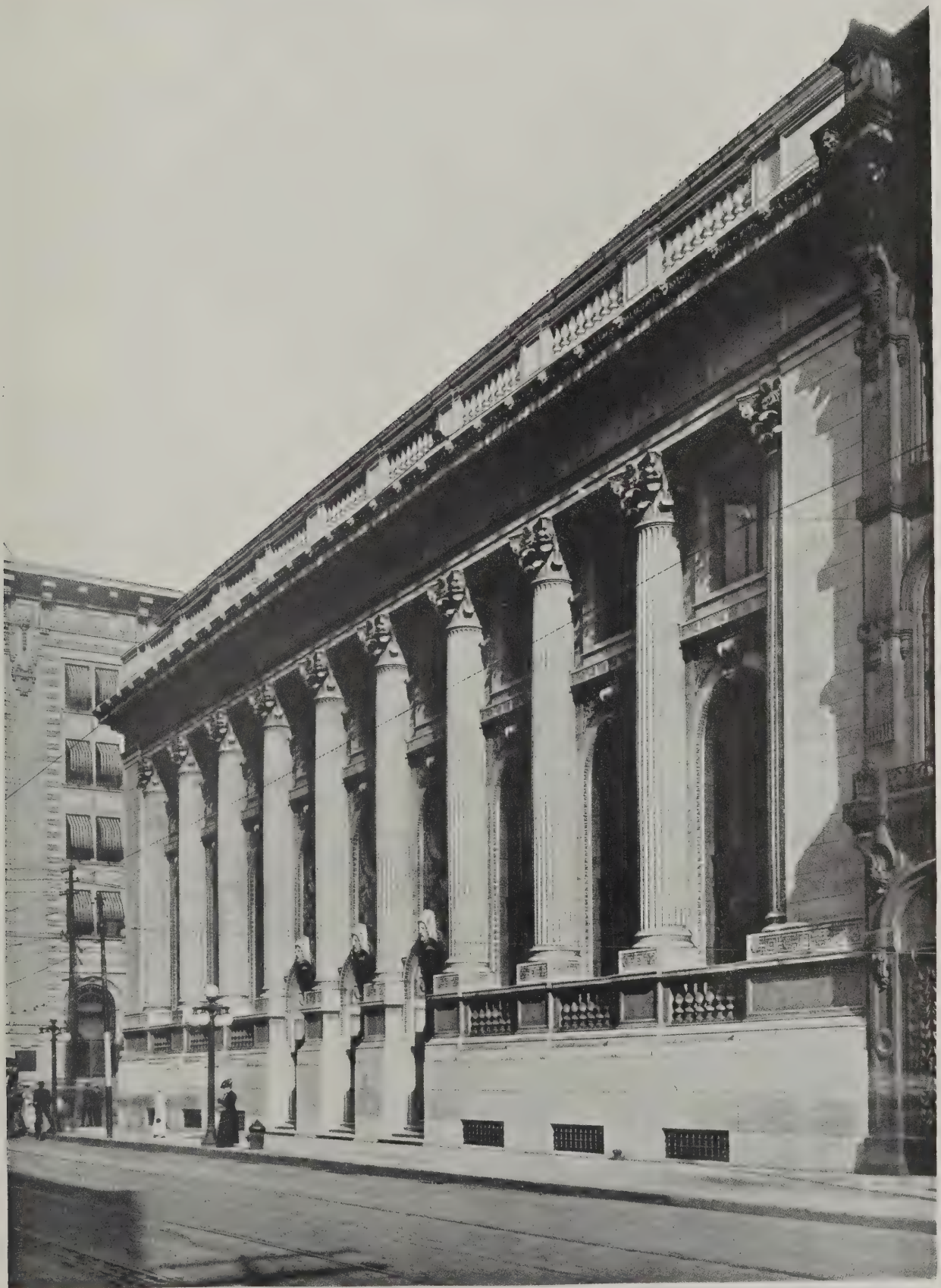
of Louis XV., with a large coved cornice. The gallery was planned on this side of the house, and the terrace had consequently to be extended; it overlooks the garden. On the west side there are two floors, the upper one being arranged so that it can be connected at a future date with the first floor of the old house. This latter was built in 1866 in the Gothic style of that period. The architects, Messrs. Mewès and Davis, considered it unsuitable for modern requirements, and therefore completely departed from it. Messrs. Thomas Lawrence and Co.'s mottled bricks were used for the walling, with Monk's Park stone, excepting the balustrade to the terrace, which is executed in Portland stone. Messrs. Higgs and Hill, Ltd., of Crown Works, Lambeth, were the builders.

Shop Front, No. 86, Piccadilly, London.

This is a very representative example of the newer class of shop front. The treatment is, of course, not suitable for all classes of business, being more adapted to those shops which do not demand an extended glass area for display. It is, however, admirably suited to



ADDITION TO COOMBE COURT, KINGSTON HILL, SURREY. MEWÈS AND DAVIS, ARCHITECTS.

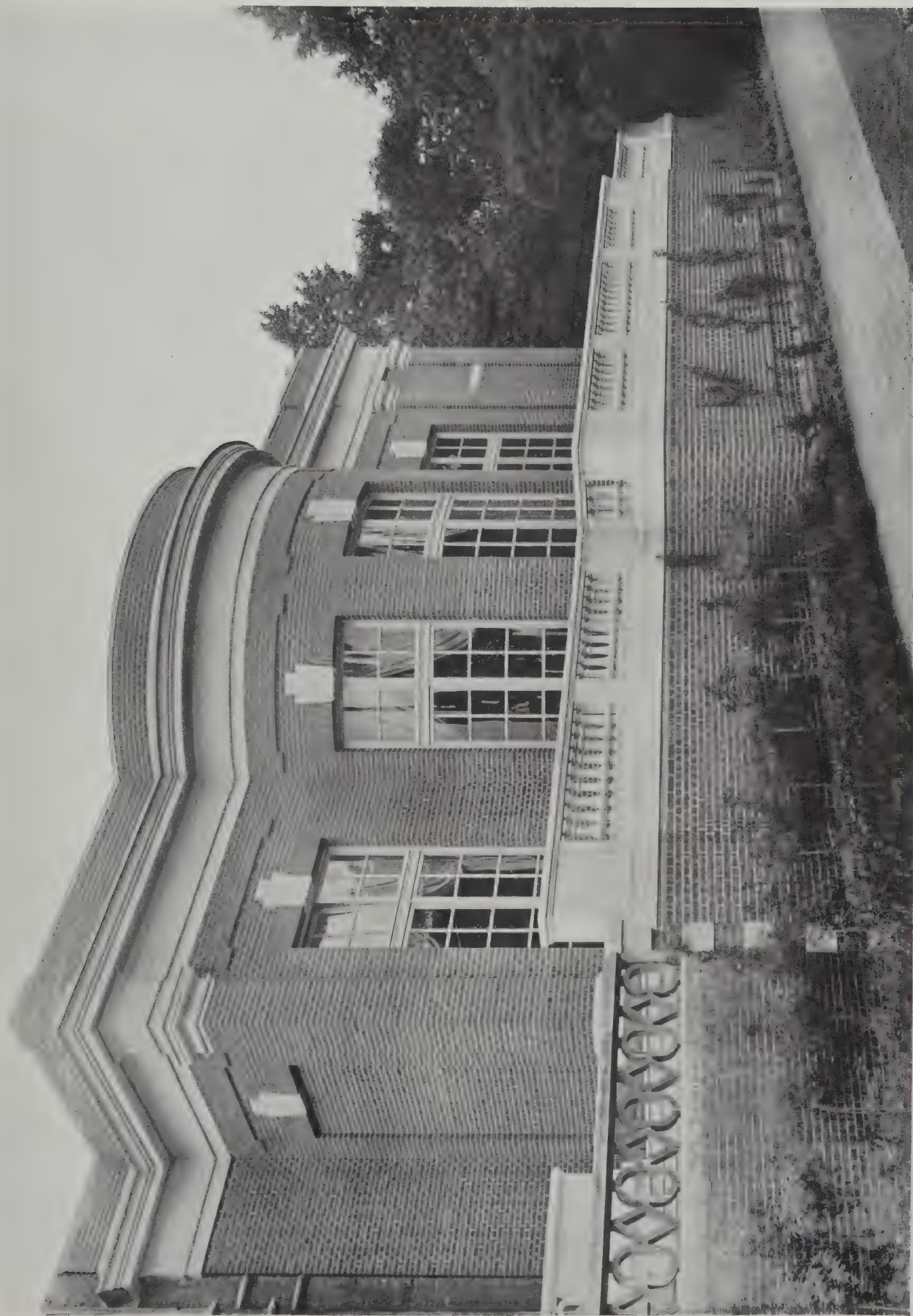


CURRENT ARCHITECTURE. V.—THE BANK OF TORONTO, TORONTO.
CARRÈRE AND HASTINGS AND EUSTACE G. BIRD, ARCHITECTS.



CURRENT ARCHITECTURE. VI.—THE BANK OF TORONTO, TORONTO: DETAIL OF FAÇADE.

CARRÈRE AND HASTINGS AND EUSTACE G. BIRD, ARCHITECTS.



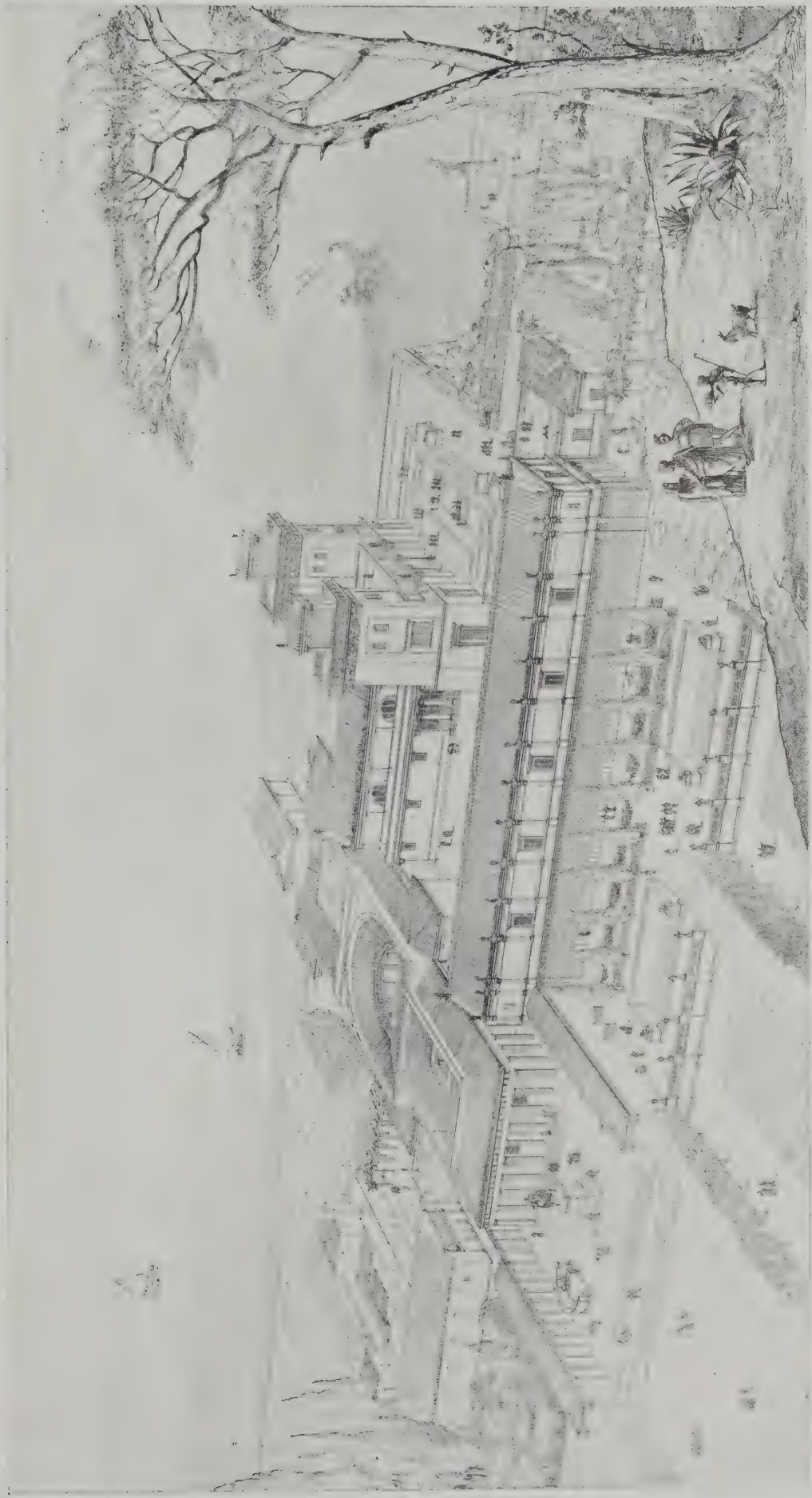
MODERN DOMESTIC ARCHITECTURE. IV.—ADDITION TO COOMBE COURT, KINGSTON HILL, SURREY.

MEWES AND DAVIS, ARCHITECTS.



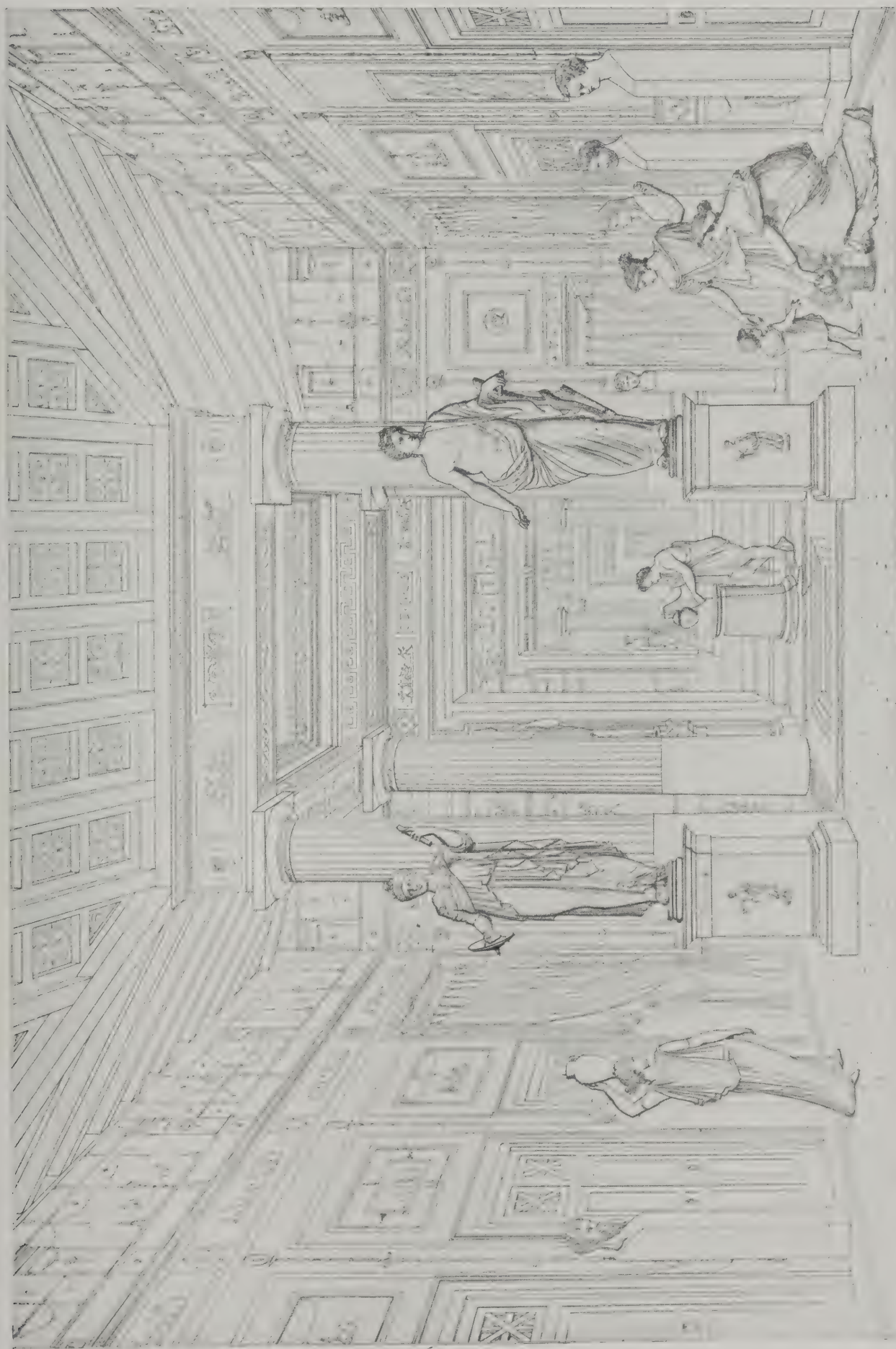
MODERN SHOP FRONTS. IV.—No. 86, PICCADILLY, LONDON.

STILL, WHEAT, AND LUKER, ARCHITECTS.



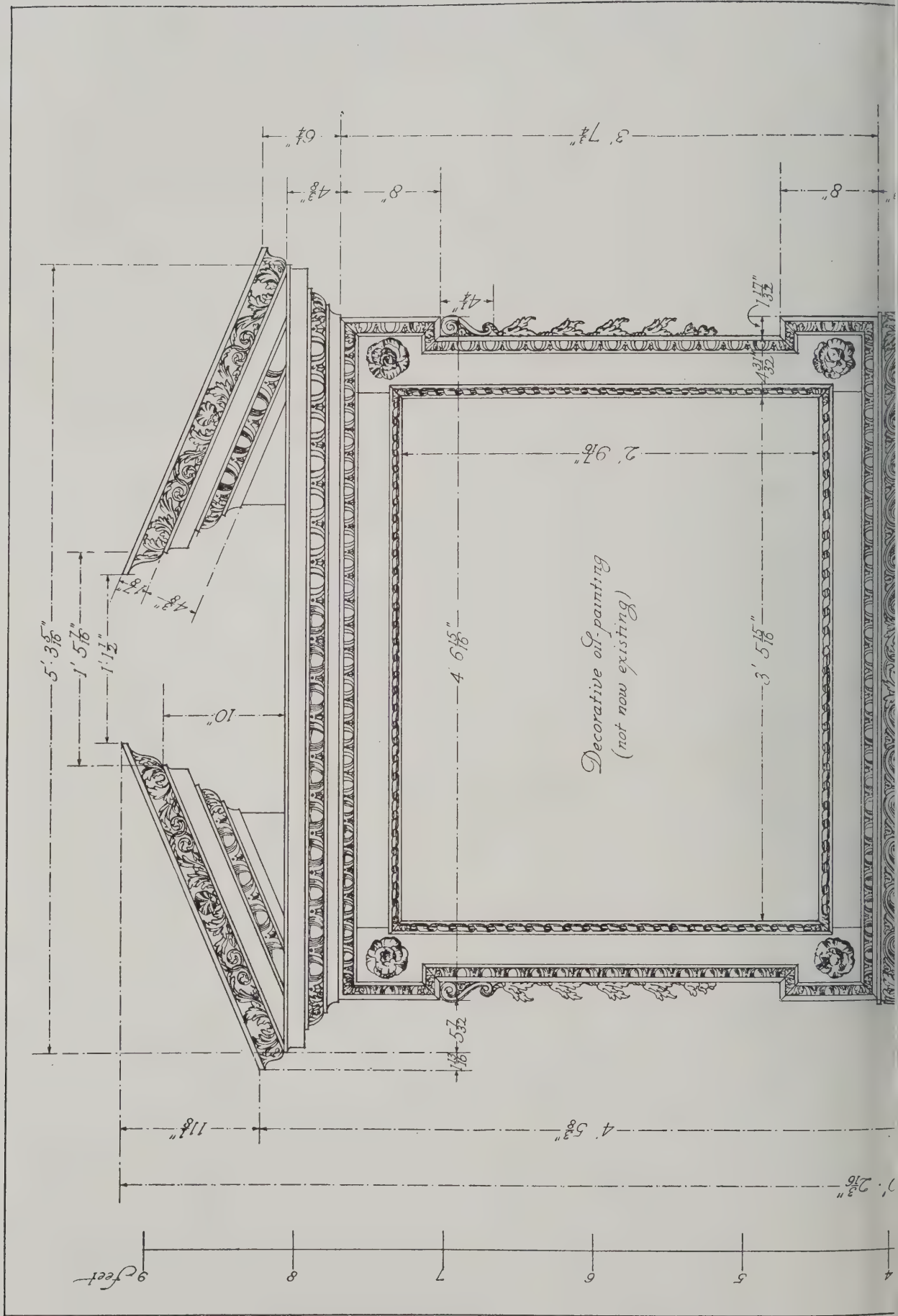
RESTORATIONS OF ANCIENT ARCHITECTURE. I.—LAURENTINUM: THE WINTER HOUSE OF PLINY.

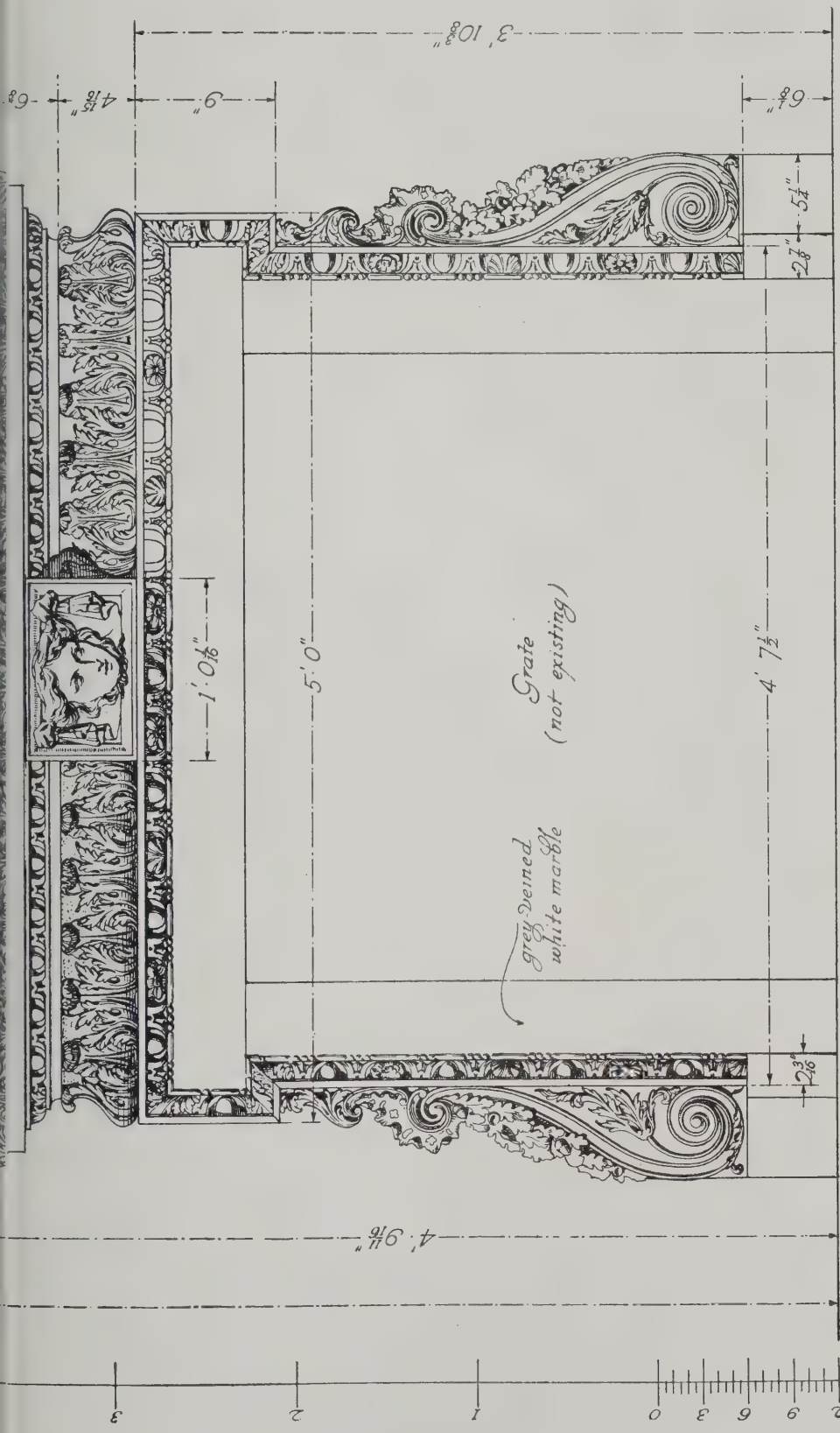
(From Bouché's Restoration)



RESTORATIONS OF ANCIENT ARCHITECTURE. II.—LAURENTINUM: THE ATRIUM.

(From Bouché's Restoration.)

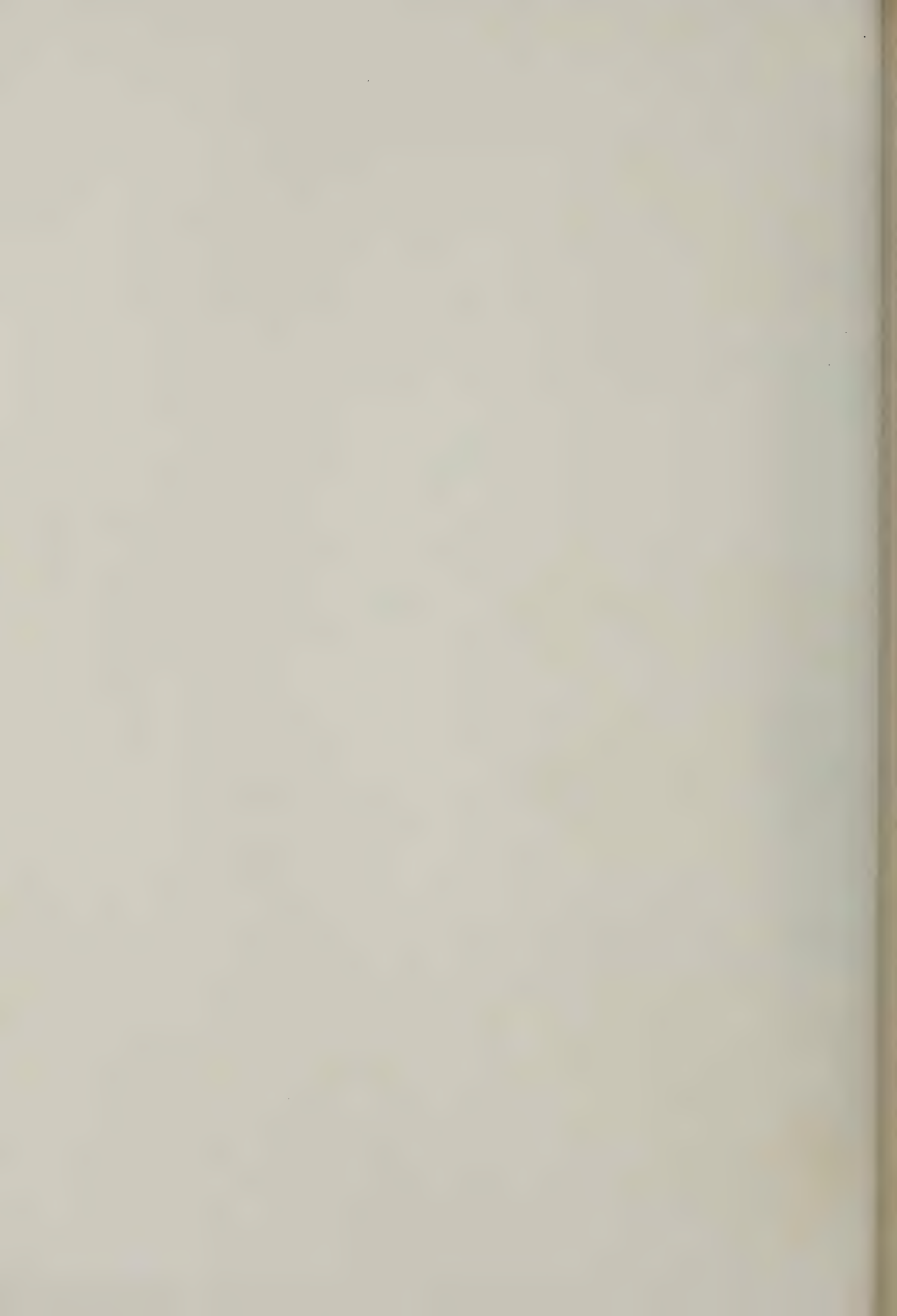




English 18th Century CHIMNEYPIECE, of carved pine.

From a House in Carey St., W.C.,
now in Victoria & Albert Museum.

Measured by *Ingleson & Goodison*,
Drawn by *John M. & Duncan*.



such a case as the one illustrated. The work is carried out in bronze, with mahogany doors, and marble fascia and surround. The shop front was designed by Messrs. Still, Wheat, and Luker, architects, and carried out by Messrs. E. Pollard and Co.

Measured Drawings of Georgian Interior Decoration.

English eighteenth-century domestic work, compendiously termed "Georgian," is at present the subject of very considerable interest. We have therefore decided to publish from time to time measured drawings of fine examples of the interior decoration of the period; the first, a carved wood chimneypiece of the early eighteenth century, appearing in this issue. This admirable example, consisting of mantel and over-mantel, was removed from a house in Carey Street, Lincoln's Inn Fields, now demolished—a portion of the present Law Courts being erected on the site. It is now in the Victoria and Albert Museum, South Kensington, to which it was presented by H.M. Office of Works in 1867.

The woodwork has been carefully freed from numerous coats of paint, and is thus brought to a condition almost resembling polished boxwood, so that every dexterous finishing cut of the accomplished carver's chisel is perfectly apparent; brilliant, vigorous, and withal sensitive workmanship it is, displaying a perfection of "draughtsmanship" and technique, united with sound, orthodox, traditional design, both in general composition and in the running ornamental motifs.

It is greatly to be regretted that the accessory painting in the fine overmantel-frame was alienated from so admirable a setting; decorative paintings were a delightful and characteristic adornment of this situation, and are rarely, if ever, within the province of the painter of to-day, so that the absence of this example is doubly to be deplored.

There is apparently no reason, however, why the grey-veined white marble slips, appertaining to the

mantel, should be separated from it, and, as an integral element in the design, they have been incorporated in the drawing which we reproduce. Further large-scale details will be published in a subsequent issue.

Bouchet's Restorations of Laurentinum.

These are described in the article by Mr. A. E. Richardson on p. 388.

THE ROYAL GLASGOW INSTITUTE OF FINE ARTS.

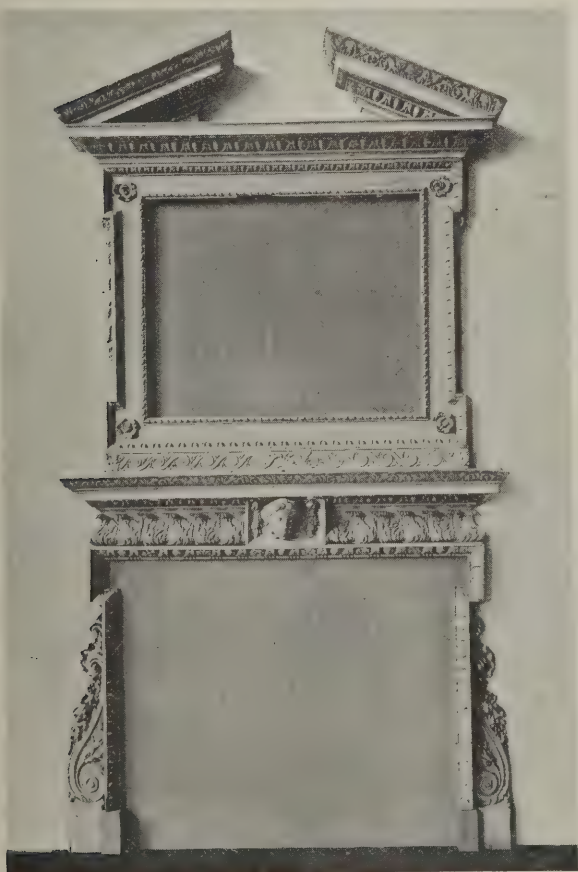
THE present exhibition—the fifty-second in the history of the Institute—is noteworthy as the first exhibition to be held in the reconstructed and enlarged McLellan Galleries. The original galleries were built in the 'fifties to house the interesting group of Old Masters formed by Archibald McLellan, and contained the city's art treasures until, in 1901, the Kelvingrove Galleries were completed. Later they were used by the Institute for its exhibitions, but having been found inadequate they have now been reconstructed at a cost of about £30,000.

The new galleries are in every way worthy of the Institute and the city, save that there is no frontage to Sauchiehall Street, the cost of which was prohibitive. The new McLellan Galleries have therefore had to remain content with the old entrance in the centre of the large business block, being approached by a corridor and staircase, as they are on the higher level of Renfrew Street, to which there are exits. The elevation to Renfrew Street is treated in an effective manner in the modern Renaissance style, and is of red freestone. A handsome circular marble staircase gives access to the Sculpture hall, from which are reached the six large galleries and two smaller ones in which are shown the works of the Institute. The largest gallery measures some 70 ft. by 42 ft., while three others are 64 ft. by 35 ft. wide. Each gallery is a simple parallelogram with splayed angles, and each wall has been provided with five rows of steel channel rails, built into the surface, on which the frames are hung. A tea room has also been provided. The galleries are well lighted and handsomely appointed.

The architectural exhibits, shown in one of the smaller galleries adjoining the Sculpture gallery, illustrate some important works. The largest drawing is a fine monochrome wash perspective of the Municipal Buildings extension, Glasgow, by Watson and Salmon. The problem was a difficult one, but it has been worthily surmounted, and the new building promises to be a much finer piece of architecture than the old Municipal Buildings to which it is conjoined. Hutcheson's Girls' Grammar School, by Thomson and Sandilands, is a good design illustrated by a fine pen-and-ink drawing. A. N. Paterson is represented by a very nice colour wash drawing of Lesmahagow Parish Church Halls. A good line perspective of the Municipal Buildings and Public Library, Hamilton, is a pleasing example of the work of Cullen, Lochead, and Brown. A large photographic view of the Palace of Industries reminds one of the late exhibition.

A spirited water-colour drawing of the Royal Hospital for Sick Children, Yorkhill, is exhibited by John Burnet and Son. A frame of six photos illustrates the very fine Holy Trinity Church, St. Andrews, by Macgregor Chalmers, who also shows a pen drawing of the cloisters about to be restored to Paisley Abbey. Clydebank Public Library is a large scale elevation of a good design by A. McInnes Gardner and Robert Whyte. St. John's Church, Oban, is shown by James Chalmers, while C. R. Mackintosh shows two frames of a house at Kilmaccolm treated in a characteristic style. There are also a number of other exhibits of varying degrees of merit.

J. J. W.



CHIMNEYPiece FROM CAREY STREET, LINCOLN'S INN.
(Now in the Victoria and Albert Museum.)

LAURENTINUM: THE WINTER VILLA OF C. PLINIUS CAECILIUS SECUNDUS.

SPECIALLY CONTRIBUTED BY A. E. RICHARDSON.

FROM time to time various conjectural restorations of the villa at Laurentinum, the favourite retreat of Pliny the Younger, have been attempted; all such reconstructions following in the main the description given in the letter to Gallus.

An early edition of Pliny's epistles was published at Milan by Catanæus in the year 1506, but no serious attempt appears to have been made to interpret the author's description of either the Laurentinum or Tuscum Villas until Scamozzi essayed the task in 1615. This design formed the basis of the scheme reconstructed by Felibien in his work, "*Plans et Dessins de deux Maisons de Campagne de Pline, avec des remarques et une dissertation touchant l'Architecture Antique et Gothique*," Paris, 1699. From this point we must turn to England during the first quarter of the eighteenth century, and incidentally to the group of cultured amateurs who directed archæological research in Italy, and who inspired architects to inquire more thoroughly into the finesse of Classic art. Foremost among these far-perceiving men stood Richard Boyle, Earl of Burlington, the patron of many artists. He it was who caused to be published for private circulation Palladio's original drawings of the Roman Thermæ; his liberality extended also to Richard Castell, who was enabled to prepare for publication "*Castell's Villas of the Ancients*," which appeared in 1728. Castell, we are informed, was a spendthrift, and died the following year in the Fleet Prison.

There can be no doubt that both the plans of Scamozzi and Felibien were referred to by Castell for his work. The actual ruins of the villa are reputed to have been discovered some time about the year 1714, but the reality of the structure does not appear to have been ascertained, either by Castell or by others. John, Earl of Orrery, whose town house stood in Leicester Fields, addressed an essay on Pliny's life to his son Charles, Lord Boyle, dated January 27th, 1750-1, together with a translation of the letters. He mentions both Scamozzi's and Felibien's attempts at the reconstruction, and reserves his encomiums for Castell. The greater interest, however, centres in the fact that the attention of the amateurs and architects was directed to an intimate account of Roman country life as it existed during the time of Trajan. And perhaps in a spirit of emulation were built such accessory features to a country mansion as the circular temple at Stowe, the Casino at Clontarf, the temples in the grounds at Kew, and other places. The publication of Castell's book, together with the drawings of the Thermæ mark a change of direction in this country in favour of purer classic art, which from 1730 onwards became decidedly Roman in its tendency. An extract from the Earl of Orrery's observations might here be introduced to point the argument.

As Pliny has omitted to mention the proportion of any one room in the garden apartment, or in the Laurentinum itself, Scamozzi, Felibien, and other authors, have endeavoured to supply his deficiency by affixing supposititious dimensions to each particular chamber. But to what purpose need we repine after a more certain and exact description of Laurentinum when our own country may at this day boast of a villa where the grandeur of design, the delicacy of art, the beauty of proportion, and the justness of taste, appear in as high splendour and with as true elegance, as Greece or Italy could ever celebrate, and at no greater distance from London than Chiswick? Melmoth's "*Letters of Pliny the Consul*," published in 1810, contain numerous references to Castell's ingenuity. In

1796 Petro Maiquez prepared a scheme showing the general arrangement of the rooms. This was followed by another ingenious plan prepared by Macquet, in 1818. And in 1838 Handebourt made an attempt.

The conjectural restorations of Scamozzi, Felibien, and Handebourt were finally turned to account by Jules Bouchet, who published "*Le Laurentinum*" in 1852. This work contains, in addition to the plans mentioned above, five steel engravings showing Bouchet's own ideas concerning the villa. These superb compositions, for they must be regarded in this light only, reveal the highly cultured and refined taste of Bouchet, and while envisioning a purely imaginary version of Roman architecture (which in fact is nothing more than Græco-Roman viewed through French spectacles) are in themselves an accurate divination of what the Classic Spirit implies.

I shall not attempt to describe the merits of each of the plates; the artistry displayed in the conception, as in the delicacy of the ornament suggested, is best understood by reference to the engravings themselves. In these illustrations is depicted that sense of intellectual superiority which is always apparent in the archæological restorations undertaken by imaginative Frenchmen.

We have witnessed of late years a return to a closer appreciation of classic architecture; attention has been given in the leading schools, not to a study of the orders in line, but to a reconstruction and composition of all the attributes of a particular order. This is as it should be: a student is taught in this way to appreciate the exact meaning of each feature and the relation it bears to the scheme as a whole. From composition of the orders of architecture, it is but a short distance to the composition of a classic building; and what better subject offers itself than the conjectural reconstruction of some masterpiece of antiquity? Delving abroad for sites and fragments is purely the province of the antiquary, who, by these researches, supplies the designer with material. If such a subject as the one now under discussion were to be set, in addition to a thesis for examination purposes, the student would have plenty of scope to exercise his imagination, as regards planning, construction, and architectural treatment. In actual practice the finest architectural results depend almost entirely on the right power for primary conception; the ability to grip the salient points of a problem at sight. The average Frenchman has this rare gift developed to a greater extent than the average Englishman, by reason of the close attention given in the French schools to conjectural restoration.

In order to awaken interest in this subject and to show what slight evidence of the actual building the various authors of restorations had to work upon Melmoth's translation of Pliny's letter to Gallus is given, although the translation by Lewis, 1882, is perhaps more acceptable reading. The student should also refer to the letter written by Pliny to Apollinaris, in which he describes the villa in Tuscany; but beyond a passing reference, he does not describe his other residences at Tusculum, Tibur, and Præneste.

It is indeed fortunate for us that Pliny was so prominent a figure of his time that his correspondence has been handed down intact. His letters to the Emperor Trajan, his description of the two villas at Laurentinum and Tuscum, as well as his accounts of life in Rome, form valuable historical essays, both from a literary and an architectural standpoint. It has been conjectured that Pliny projected the plan of the villa

at Laurentinum, but had recourse to Appollodorus (Trajan's architect) to carry out the idea.

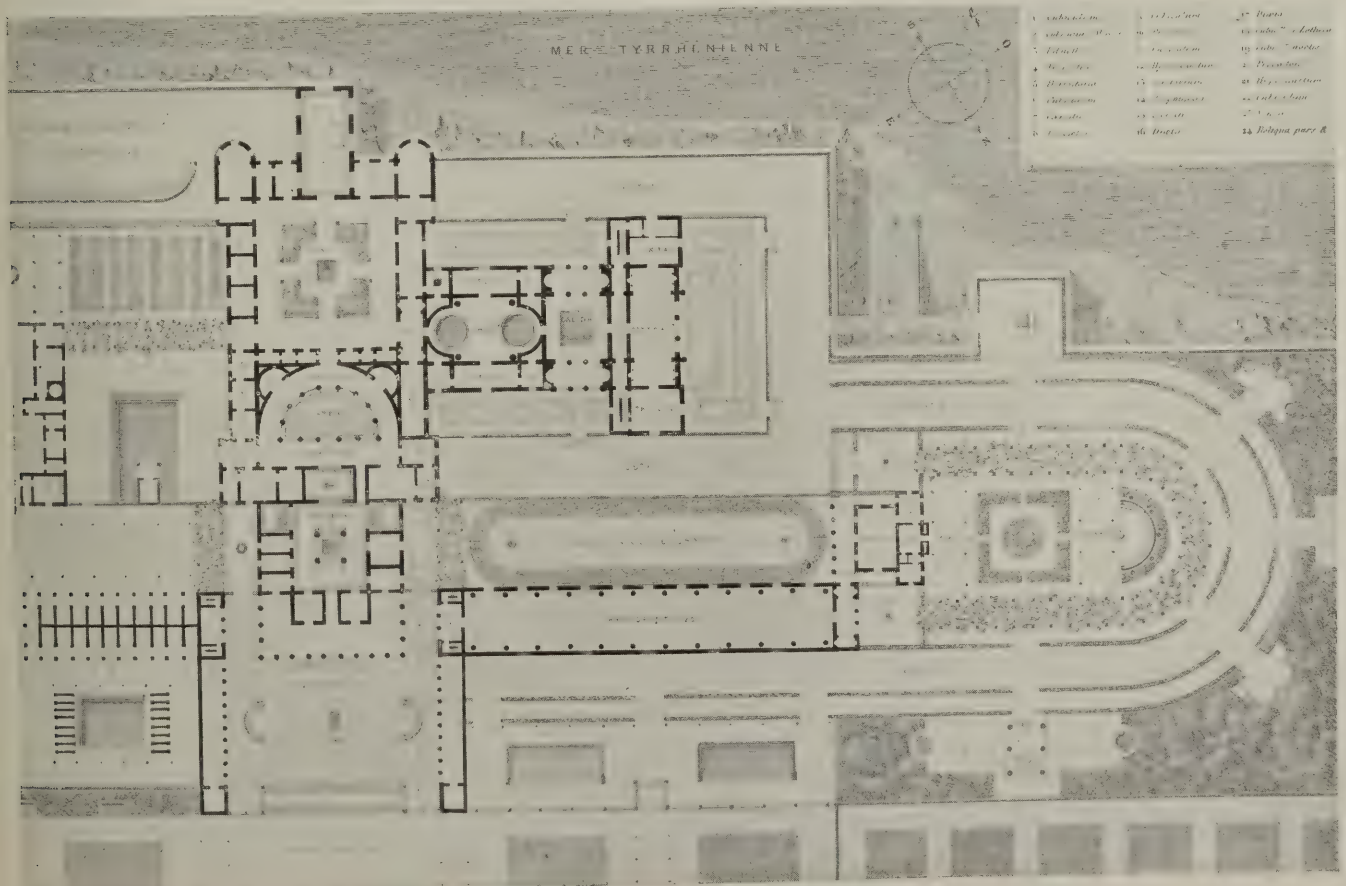
The Letter to Gallus.

You are surprised, it seems, that I am so fond of my Laurentinum, or (if you like the appellation better) my Laurens; but you will cease to wonder when I acquaint you with the beauty of the villa the advantages of its situation, and the extensive prospect of the sea-coast. It is but seventeen miles distant from Rome; so that, having finished my affairs in town, I can pass my evenings here, without breaking in upon the business of the day. There are two different roads to it; if you go by that of Laurentum, you must turn off at the fourteenth milestone; if by Ostia, at the eleventh. Both of them are, in some parts, sandy, which makes it somewhat heavy and tedious, if you travel in a carriage, but easy and pleasant to those who ride on horseback. The landscape, on all sides, is extremely diversified; the prospect, in some places, being confined by woods, in others extending over large and beautiful meadows, where numberless flocks of sheep and herds of cattle, which the severity of the winter has driven from the mountains, fatten in the vernal warmth of this rich pasturage.

My villa is large enough to afford all desirable accommodations, without being extensive. The porch before it is plain, but not mean, through which you enter into a portico in the form of the letter D, which includes a small but agreeable area. This affords a very commodious retreat in bad weather, not only as it is inclosed with windows, but particularly as it is sheltered by an extraordinary projection of the roof. From the middle of this portico you pass into an inward court, extremely pleasant, and from thence into a handsome hall, which runs out towards the sea; so that when there is a south-west wind, it is gently washed with the waves, which spend themselves at the foot of it.

On every side of this hall there are either folding doors, or windows equally large, by which means you have a view from the front and the two sides, as it were, of three different seas; from the back part you see the middle court, the portico, and the area; and, by another view, you look through the portico into the porch, from whence the prospect is terminated by the woods and mountains which are seen at a distance. On the left hand of this hall, somewhat farther from the sea, lies a large drawing-room, and beyond that a second of a smaller size, which has one window to the rising and another to the setting sun: this has, likewise, a prospect of the sea, but being at a greater distance is less incommoded by it. The angle which the projection of the hall forms with this drawing-room, retains and increases the warmth of the sun; and hither my family retreat in winter to perform their exercises: it is sheltered from all winds, except those which are generally attended with clouds, so that nothing can render this place useless, but what, at the same time, destroys the fair weather. Contiguous to this is a room forming the segment of a circle, the windows of which are so placed as to receive the sun the whole day: in the walls are contrived a sort of cases, which contain a collection of such authors whose works can never be read too often.

From hence you pass into a bed chamber through a passage, which being boarded and suspended, as it were, over a stove which runs underneath, tempers the heat which it receives and conveys to all parts of this room. The remainder of this side of the house is appropriated to the use of my slaves and freedmen; but most of the apartments, however, are neat enough to receive any of my friends. In the opposite wing is a room ornamented in a very elegant taste; next to which lies another room, which, though large for a parlour, makes but a moderate dining-room; it is exceedingly warmed and enlightened, not only by the



GROUND-FLOOR PLAN OF LAURENTINUM.
(From Bouchet's Restoration.)

direct rays of the sun, but by their reflection from the sea. Beyond is a bed chamber, together with its antechamber, the height of which renders it cool in summer, as its being sheltered on all sides from the winds makes it warm in winter.

To this apartment another of the same sort is joined by one common wall. From thence you enter into the grand and spacious cooling room, belonging to the bath, from the opposite walls of which two round basins project, sufficiently large to swim in. Contiguous to this is the perfuming room, then the sweating room, and next to that the furnace which conveys the heat to the baths; adjoining are two other little bathing-rooms, fitted up in an elegant rather than costly manner: annexed to this is a warm bath of extraordinary workmanship, wherein one may swim, and have a prospect, at the same time, of the sea. Not far from hence stands the tennis-court, which lies open to the warmth of the afternoon sun. From thence you ascend a sort of turret, containing two entire apartments below, as there are the same number above, besides a dining-room, which commands a very extensive prospect of the sea, together with the beautiful villas that stand interspersed upon the coast. At the other end is a second turret, in which is a room that receives the rising and setting sun.

Behind this is a large repository, near to which is a gallery of curiosities, and underneath a spacious dining-room, where the roaring of the sea, even in a storm, is heard but faintly: it looks upon the garden, and the gestatio, which surrounds the garden. The gestatio is encompassed with a box-tree hedge, and where that is decayed, with rosemary: for the box, in those parts which are sheltered by the buildings, preserves its verdure perfectly well; but where, by an open situation, it lies exposed to the spray of the sea, though at a great distance, it entirely withers. Between the garden and this gestatio runs a shady plantation of vines, the alley of which is so soft, that you may walk barefoot upon it without any injury. The garden is chiefly planted with fig and mulberry trees, to which this soil is as favourable as it is averse from all others. In this place is a banqueting-room, which, though it stands remote from the sea, enjoys a prospect nothing inferior to that view: two apartments run round the back part of it, the windows whereof look upon the entrance of the villa, and into a very pleasant kitchen garden. From hence an enclosed portico extends, which, by its great length, you might suppose erected for the use of the public. It has a range of windows on each side, but on that which looks towards the sea they are double the number of those next the garden. When the weather is fair and serene these are all thrown open; but if it blows, those on the side the wind sets are shut, while the others remain unclosed without any inconvenience.

Before this portico lies a terrace, perfumed with violets, and warmed by the reflection of the sun from the portico, which, as it retains the rays, so it keeps off the north-east wind; and it is as warm on this side as it is cool on the opposite. In the same manner it proves a defence against the south-west; and thus, in short, by means of its several sides, breaks the force of the winds from what point soever they blow. These are some of its winter advantages; they are still more considerable in summer; for at that season it throws a shade upon the terrace during all the forenoon, as it defends the gestatio, and that part of the garden which lies contiguous to it, from the afternoon sun, and casts a greater or less shade, as the day either increases or decreases; but the portico itself is then coolest, when the sun is most scorching, that is, when its rays fall directly upon the roof. To these its benefits I must not forget to add, that by setting open the windows, the western breezes have a free draught, and by that means the enclosed air is prevented from stagnating. On the upper end of the terrace and portico stands a

detached building in the garden, which I call my favourite; and indeed it is particularly so, having erected it myself. It contains a very warm winter room, one side of which looks upon the terrace, the other has a view of the sea, and both lie exposed to the sun. Through the folding-doors you see the opposite chamber, and from the window is a prospect of the enclosed portico. On that side next the sea and opposite to the middle wall, stands a little elegant recess, which by means of glass doors and a curtain, is either laid into the adjoining room or separated from it. It contains a couch and two chairs. As you lie upon this couch, from the feet you have a prospect of the sea; if you look behind you see the neighbouring villas; and from the head you have a view of the woods: these three views may be seen either distinctly from so many different windows in the room, or blended together in one confused prospect.

Adjoining to this is a bed chamber, which neither the voice of the servants, the murmuring of the sea, nor even the roaring of a tempest, can reach; not lightning, nor the day itself can penetrate it, unless you open the windows. This profound tranquillity is occasioned by a passage, which separates the wall of this chamber from that of the garden; and thus, by means of that intervening space, every noise is precluded. Annexed to this is a small stove room, which by opening a little window, warms the bed chamber to the degree of heat required. Beyond this lies a chamber and antechamber, which enjoys the sun, though obliquely indeed, from the time it rises till the afternoon. When I retire to this garden apartment I fancy myself a hundred miles from my own house, and take particular pleasure in it at the feast of the saturnalia, when by licence of that season of festivity, every other part of my villa resounds with the mirth of my domestics: thus I neither interrupt their diversions nor they my studies. Among the pleasures and conveniences of this situation there is one disadvantage, and that is the want of a running stream; but this defect is, in a great measure, supplied by wells, or rather I should call them fountains, for they rise very near the surface.

And indeed the quality of this coast is remarkable; for in what part soever you dig, you meet, upon the first turning up of the ground, with a spring of pure water, not in the least salt, though so near the sea. The neighbouring forests afford an abundant supply of fuel; as every other accommodation of life may be had from Ostia: to a moderate man, indeed, even the next village (between which and my house there is only one villa) would furnish all common necessities. In that little place there are no fewer than three public baths, which is a great conveniency, if it happen that my friends come in unexpectedly, or make too short a stay to allow time for preparing my own. The whole coast is beautifully diversified by the contiguous or detached villas that are spread upon it, which whether you view them from the sea or the shore, have the appearance of so many different cities. The strand is sometimes, after a long calm, perfectly smooth, though, in general, by the storms driving the rains upon it, it is rough and uneven. I cannot boast that our sea produces any very extraordinary fish: however, it supplies us with exceedingly fine soles and prawns; but as to provisions of other kinds, my villa pretends to excel even inland countries, particularly in milk; for hither the cattle come from the meadows in great numbers, in pursuit of shade and water.

Tell me, now, have I not just cause to bestow my time and my affection upon this delightful retreat?

Surely you are too fondly attached to the pleasures of the town, if you do not feel an inclination to take a view of this, my favourite villa. I much wish, at least, you were so disposed, that, to the many charms with which it abounds, it might have the very considerable addition of your company to recommend it.

Farewell.

HERE AND THERE.

JUST as Sir Aston Webb is our most facile after-dinner speaker on architectural topics, so I should say that Professor Lethaby is pre-eminent as a lecturer or writer able to say a score of new things on any subject he deals with. Whether it be a critical discussion of the Ruthwell Cross, a serious essay on the achievements of Wren, or a discursive survey of house-painters' work, he is always able to stir our interest. And the reason is, that while being the most erudite architectural scholar in England, he is never prosy. Moreover, he has the gift of making people think for themselves by taking up an independent point of view. No wonder, then, that after he had been talking to the house painters and decorators in solemn conclave at Leamington the other day, a genial Irish member should have protested that Professor Lethaby had flung assertions at them like the half-bricks that were whizzing about dear old dirty Dublin at that moment—all because he made a direct attack on "frowzy browns" and similar dead colours, and proceeded to shout a paean for white paint. But he had a word to say also about marbling and graining. Now we all know the iniquity of such practices. Have not the purists been at the business these many years? We have tapped those wooden-marble columns and shaken our heads at such perversion, and the backs of the cheap suites in the furniture shops have disclosed the vanity of making one wood appear to be a much more expensive one. Yet the other day I was minutely examining the grained-plaster wall of a staircase in a Georgian house and found it hard to say it was not the real thing. To commend this, however, is to affirm that the cleverer the rogue the less his offence, until the arch-deceiver becomes sublime. Nor can we find excuse in old-established precedent, else it would have been a glorious thing for Noah to have painted his asses to look like zebras. But in these degenerate days, when architecture is becoming cosmopolitan and the worst period soon finds a eulogist, the former tenets no longer keep us in the narrow path. Professor Lethaby even is wobbling. Here is the reporter's account of his speech: "In marbling and graining many modern craftsmen were remarkably skilful, but, unfortunately, the skill did not coincide with an important need. For good reasons graining and marbling, as practised, had fallen out of repute. It was difficult to say exactly what divided off what was art or fine craftsmanship from what was not. He always thought that the beautiful wax ladies in hairdressers' shops were an interesting form of sculpture, but it must be recognised that connoisseurs did not buy them to decorate their houses. In much the same way marbling was restricted to the wood-cut pillars on each side of the public-house door, and graining was demanded only in very second-rate houses. Two reasons might be given for the small appreciation of those arts. It was supposed to be done as a sham, and it was perhaps done in rather a tricky way. However, much of the work was extremely able, and it showed that the British workman could do anything when he was clear as to what was wanted." This is sad, indeed, from one who was brought up in the fierce light of the later Goths. But let us hasten to give the epilogue. "If in marbling and graining they could turn the aim from illusive imitation to that of handling a general notion of breaking up colour by variegated surfaces and veinings, the objectionable element in them would be avoided." Professor Lethaby always has a saving portion of practical wisdom, and he does not fail us in this instance.

Some time ago I wrote a paragraph about the respective meanings of the words "fireplace," "mantelpiece,"

and "chimneypiece," in regard to which considerable confusion exists, both among those who are professionally concerned with such things in their everyday work and among lexicographers, lay and technical. The definition I gave, very briefly, was that a fireplace is the interior with its grate, a mantelpiece includes the surround and the mantel-shelf, and a chimney-piece embraces an overmantel as well. To this it may be added that it was the decorative overmantel paintings that gave us the term "chimneypiece," these implying "a picture, piece of sculpture or of tapestry, placed as an ornament over a fireplace." The two types which we now distinguish as mantelpiece and chimneypiece were defined by Isaac Ware in his "Complete Body of Architecture" (1756) as "simple" and "continued" chimneypieces, the author stating that the former was to be preferred for rooms that were "hung"—i.e., covered with silk or paper between the dado or skirting and the cornice.

Is it not time that the "film" invaded the architectural and building schools? Are not the educational institutes rather backward in being without such a material addition to their means of instruction? Its possible development conjures up astonishing visions. Who knows whether we may not yet see advertised outside the R.I.B.A. or the A.A. a two-reel film full of thrilling episodes, with a gramophone accompaniment recording an exhilarating conversation between a beefy foreman and two bricklayers. But, putting aside all these possible delights of entertainment, there surely can be no doubt that the cinematograph might be made immensely serviceable as a technical instructor. For the last week or so I have passed along a certain well-known road which is giving up its wood blocks for asphalt. There was first of all the removal of the old blocks, then the digging up of the old foundation—a task of immense difficulty, as the bed was like one solid mass of concrete—then the smashing up of the mass and the making of a new foundation, then the careful piling up of the little ridge across the road that serves as a gauge for the new surface, then the filling in with concrete, and screeding of the surface, then the tarring of the surface, then the dumping down of the asphalt, and finally the line of swarthy cumabunded gentlemen from Italy (or Saffron Hill) tamping away placidly with their hot irons. A film of such a subject as this would be worth whole pages of description and diagrams. It would hardly be possible to imitate the delicious odour that circles out of the tar-boiler, nor could we hope to reproduce all that the watchman said as he saw the footprints on the soft cement surface the next morning, but we could get an admirable idea of how an asphalt roadway is formed; and the same kind of thing could be done with a hundred other operations that concern the architect, the surveyor, and the builder.

A correspondent kindly sends me a marked copy of the "Western Mail," directing my attention to an advertisement under "Properties." What greater evidence could one wish than this, to prove how absolutely dead is that old controversy over the styles: for here on the Heath Park Avenue Estate at Cardiff is a "picturesque garden village" which illustrates, in the most alluring way, that the architectural millennium has "arrived." These Cardiff villas, the advertisement tells us, "are built in Norman, Elizabethan, Gothic, Swiss, and Early English Styles of Architecture." Here, indeed, is catholicity of taste, though one is somewhat downcast at the absence of a few Grecian, Roman, and Byzantine villas. But perhaps these will come to complete the picturesqueness.

UBIQUE.

SOME ARCHITECTURAL TOPICS.*

BY JOHN BROOKE, F.R.I.B.A.

Registration.

MANY very important questions affecting the welfare of the profession have been under discussion during the last session, including that most difficult problem, the proposed Registration Bill. A draft Bill has now been completed, in spite of little encouragement from counsel and others who have been consulted as to its chances of becoming law. We are advised that in the present condition of Parliamentary affairs a Bill of this nature is not at all likely to be successful. In the face of these difficulties many of the Council feel that we had better rely on our powers under the existing Royal Charter, which powers are recognised by the courts, and, it is thought, are sufficient for our purposes. The preparation of a revised scale of professional charges has occupied the attention of the R.I.B.A. It is now completed, and as soon as it is approved by the general body of members it will be put into force.

The Condition of St. Paul's

As a member of the R.I.B.A. Council I was invited with other members to inspect the work which is being done at St. Paul's Cathedral with a view to securing the safety of the structure owing to the serious settlements which have taken place. In company with the cathedral architect, Mr. Macartney, and Sir Francis Fox, the engineer specialist (who is in charge of the work), a very thorough examination of a large portion of the building was made and the nature of the damage which has occurred was pointed out, together with the methods which are being adopted to remedy the defects. The source of the danger is supposed to be the bed of quicksand which occurs in the subsoil at a depth of about 20 ft. below the foundations, and there is documentary evidence to show that about fifty years ago this running sand was tapped during the construction of a deep sewer in close proximity to the cathedral, thus causing the settlements which have occurred. The question is whether this sewer is not permanently extracting the sand and causing further settlement. Apart from the question of the existence of this quicksand, it was discovered that the construction of the walls was very defective. The main piers supporting the dome are composed chiefly of loose stone rubble with a thin outside casing of bedded masonry, averaging about 9 in. thick, which casing was practically bearing the whole of the enormous weight of the superstructure of the dome, a total of some 7,000 tons, carried on eight piers, about 30 ft. by 8 ft., respectively. With a view to strengthening these piers liquid cement grout has been forced at a high pressure through the cracks and through holes cut in the outer casing of the masonry into the rubble filling, with the object of converting the whole pier into a monolith or homogeneous block. Examination of portions of the work which had been completed showed most satisfactory results, and I fully believe will result in the removal of all danger of collapse.

The New Classic Revival.

I will now refer to more general matters affecting the welfare of the profession. The battle of the styles has ceased for the present and the Goth has surrendered to

the Greek and Roman forces, and Classic architecture holds the field. Some of us will remember the time immediately succeeding the previous reign of the Classic style, born of the Dilettante Society's labours, and followed by the beautiful and scholarly productions of Professor Cockerell, Sidney Smirke, and their co-peers. Through the influence of Ruskin this most interesting period in Classic architecture terminated, and gave way to a Gothic revival which swept like an epidemic through the country, infecting everyone. Both the clergy and laity were moved to enthusiastic, not to say feverish, activity. Nearly all the cathedrals and churches in the country were placed in the hands of Gothic experts to restore or rebuild: alas, unfortunately, in most cases, to destroy and ruthlessly remove the poetry and tradition which the original builders and time had bequeathed, leaving in their place lifeless productions of the unsympathetic hardness which belongs to cast-iron. Beautiful stained glass was removed for meretricious substitutes, and very much of what was best was swept in the Gothic flood. Oh, the pity of it! To say nothing of the waste of money, which might have been spent to so much better purpose. The Gothic treatment was applied to all sorts of buildings for which it was quite unsuited. No wonder that a reaction took place and that Classic architecture has once more successfully asserted its claims and has gradually but surely taken a firm hold in present-day design.

Academic Education.

In the last decade drastic changes have taken place in the methods of architectural teaching, and the old system of pupilage has largely given place to the academic. It is to be hoped the result will be satisfactory, but there is no doubt there is loss as well as gain in the change. The danger of academic education is the individual and dominating influence of the teacher, which is calculated to produce a stereotyped similarity of design and stifle individual effort and inspiration. There will also be a loss in the business capacity of the future architect, which is so essential a part of his training in his own interests and for the proper protection of those of his clients. It behoves us, therefore, to see that this academic method of teaching shall be placed in the most capable hands and directed from the R.I.B.A. rather than by those educational bodies which lack the necessary architectural knowledge and experience. In view of these changes in the methods of teaching, I would ask the question whether satisfactory progress is being made in architectural design? There has, I think, been improvement in the design of our public buildings in recent years, both as to planning and a greater breadth and simplicity of outline, and in the omission of unnecessary features, the better treatment of the wall spaces, and the effect of contrast is better understood, and there is a greater absence of meretricious ornament.

Small House Design.

Perhaps the greatest improvement in design is to be found in small houses for the use of the middle classes, as seen in what are called "Garden Cities," and in the suburbs of large towns. It is quite a new development, and has taken the place of the old semi-detached villa, on which it is,

needless to say, a great improvement. It has provided the opportunity for much originality of treatment, and the results are as a whole highly satisfactory. There is much yet to be done in the provision of dwellings for this very numerous portion of the community. The increasing difficulties in domestic service point to residential flats with a co-operative service, and I expect to see in the near future considerable development of the residential flat system. With respect to the dwellings for workmen, little real progress has been made owing to the question of cost as compared with the rents which can be paid. These difficulties have been seriously increased by recent legislation, which has for the time being checked the career of the speculative builder, who in time past has provided this class of house. The dearth of suitable dwellings for the working classes is becoming very serious in many districts, and something will have to be done, either by Parliament or the local authorities, to supply the want in the absence of private enterprise.

As regards the architectural development of our towns and cities, efforts to improve them are sadly hampered by narrow views, which resist all attempts at broad treatment. I fear in city improvements the narrow and patchwork methods generally prevail, but these narrow views are by no means synonymous with true economy, and are a great bar to progress. Locally, we suffer seriously from these causes, and the opportunities for the improvement of our city are thrown away.

Against Public Competitions.

I would again sound a note of warning against being too ready to take part in the lottery of public competitions. The public have discovered our weakness in this respect, and are exploiting the profession for their own benefit. The only kind of competition which is reasonably fair is the limited competition, in which all who take part are paid their out-of-pocket expenses at least. As an illustration of the effect of this species of lottery, I would refer to the recent bankruptcy of an able architect who attributed the cause of his insolvency to having taken part in the last six or seven years in more than fifty public competitions. He had been placed first in four, but in only one or two cases had he been allowed to carry out his design, "owing to the action of the committee concerned being in favour of local men." In granting his discharge the judge commented on the unremunerative character of competition work as follows: "He knew that competitions were about the most expensive form of business an architect could indulge in, because, even if he were at the top, it did not follow that he would get the contract, for there were so many influences at work." I trust this warning will not be thrown away, and that we shall spend our time more profitably than by gambling in public competitions.

Outdoor Sketching.

Finally, I would impress upon assistants and the younger members of our profession, who are called upon to spend many hours in the close atmosphere of an office, the necessity for preserving their bodily health. Open-air exercise must not be neglected, and I would strongly recommend the cultivation of outdoor sketching, which will combine the necessary exercise and fresh air with mental improvement.

* Extracts from the Presidential Address to the Manchester Society of Architects.

PROJECTED NEW WORKS.

Bridge over the Avon.

It is proposed to build a new bridge over the Avon at Offenham, near Evesham.

Post Office, Walsall.

A new post office is shortly to be erected at Walsall on a site immediately opposite the existing building.

Asylum, Derby.

It is proposed to erect a new asylum at Thornhill, near Bamford, an appropriate site having already been acquired.

St. Giles's Home, Wrexham.

A new home for waifs and strays is to be built at Wrexham at a cost of £3,439. Mr. J. H. Swainson is the architect.

Garden City, Shirley, Hants.

It is proposed to develop on garden city lines some twenty-seven acres of land on the Whiteswood Estate, Shirley, Hants.

Bathing Pool, Southport.

Southport Town Council propose to apply to the L.G.B. for sanction to borrow £4,500 for the erection of an open-air bathing pool.

Municipal Buildings Extension, Southport.

The alteration and extension of the municipal buildings, at an estimated cost of £6,418, is contemplated by Southport Corporation.

Reconstruction of Premises, Swansea.

Messrs. Ben Evans and Co., Ltd., of Swansea, contemplate the reconstruction of their premises at a cost of between £8,000 and £10,000.

Consumptive Sanatorium, Rothesay.

It is proposed to build at Rothesay a consumptive sanatorium in the grounds of Robertson Stewart Hospital, at an estimated cost of £2,500.

School of Agriculture, Leeds.

An anonymous benefactor has signified his intention of presenting £10,000 to Leeds University for the erection of a school of agriculture.

Electric Plant Extensions.

The Walsall Town Council are about to spend £4,840 upon the provision of additional plant and buildings at the borough electricity generating station.

New Baths, Bristol.

A Local Government Board enquiry has been held into the application by the Bristol Corporation for a loan of £27,542 for the provision of baths at Horfield.

Synagogue at Stamford Hill.

It is proposed to build a synagogue and school premises on the southern side of Egerton Road and the western side of Rookwood Road, Clapton Common.

Developments in Kingsway.

On the east side of Kingsway at the southern end two new buildings, named India House and Empire House, are shortly to be erected. Few of the vacant sites in Kingsway now remain unlet.

Cheapside Improvement Scheme.

The L.C.C. have agreed to a contribution of £77,500 towards the cost of widening St. Martin's-le-Grand and Gresham Street at the site of the old General Post Office, and of Cheapside at "Sweeting's Corner."

Liverpool Rebuilding Schemes.

At a meeting of the Liverpool Housing Committee it was stated that all formal proceedings in connection with the nine

building schemes approved by the council last year had now been gone through, the approval of the Local Government Board having been given. As to three of these schemes, the whole of the properties had been acquired, and plans for rebuilding had been approved in respect of two. The completion of these schemes will replace 747 insanitary houses—most of them of the back-to-back type.

Baths and Street Improvements, Bristol.

A Local Government Board enquiry has been held into the application of the Council to borrow £27,542 for the provision of baths at Horfield and £3,786 for the purposes of street improvement.

Electricity Works, Wolverhampton.

The Wolverhampton Corporation are asking for power to borrow £22,000 in connection with their electricity undertaking. It is proposed to spend £15,000 on main extensions, £5,000 on sub-station equipment, and £2,000 on extra high tension switch gear. It is thought that shortly it will be necessary to spend £30,500 for steam generating plant and additional buildings.

Glasgow Rebuilding Scheme.

A Glasgow syndicate has obtained an option over one of the most important blocks in Glasgow, that containing the Royalty Theatre, at the corner of Sauchiehall Street and Renfield Street. It is understood that the intention is to reconstruct the entire building and form a first-class commercial hotel on a picture house to contain over 1,000 people. The scheme will probably cost about £50,000.

London.

The London County Council have consented to the erection of the following works:—A building upon a site abutting upon the northern side of Flaxman Road and the eastern side of Redan Terrace, Camberwell, on the application of Mr. E. W. Banfield. Addition to St. Catherine's Church, Pepys Road, Hatcham, on the application of Messrs. Stock, Page and Stock. A building upon the site of Nos. 297 to 301 Hoxton Street, and Nos. 21 to 31, Hobbs Place, Hoxton, on the application of Messrs. Lovegrove and Papworth. A building on the northern side of Alfred Mews, Holborn, on the application of Messrs. Smith and Brewer, on behalf of Heal and Son, Limited. A building to be known as the Park Lane Hotel, upon a site abutting upon the northern side of Piccadilly and the southern side of Brick Street, on the application of Mr. C. W. Stephens. An addition to the premises of the Hearts of Oak Benefit Society, Euston Road, St. Pancras, to abut upon Euston Road, Churchway and Grafton Place, on the application of Messrs. Nicol and Nicol. The formation or laying out of a new street to lead out of the north-eastern side of Beaufort Street, and a new street to lead out of the southern side of Little Camera Street, Chelsea; the widening of portions of Beaufort Street, Camera Square, and Little Camera Street, and the erection of buildings, on the application of Messrs. Elms and Jupp. A building upon a site on the northern side of Orange Street and the eastern side of Long's Court, Westminster, on the application of Mr. H. Goslett. A house at the corner of Copley Park and Heybridge Avenue, Streatham, on the application of Mr. F. Gadsdon. Buildings at Baltic Wharf, Grosvenor Road and Vauxhall Bridge Road, Westminster, on the application of Messrs. Read and MacDonald, on behalf of Messrs. Holloway Brothers. A building on the site of King's

College Hospital, next Portugal Street, Carey Street, Grange Court and Clement's Lane, on the application of Mr. H. O. Ellis, on behalf of Messrs. W. H. Smith and Son. A parish hall next Britannia Road, and Moore Park Road, Fulham, on the application of Messrs. Greenaway and Newberry. A building at No. 8, Richmond Terrace, Whitehall, next Richmond Mews, on the application of Mr. E. Dru Drury, on behalf of the National Club. A building on the western side of Denmark Hill, Camberwell, on the application of Messrs. H. Langston and Co., on behalf of Camberwell Picture Theatre, Limited. A building upon a site abutting upon the western side of Vincent Square, Westminster, and the eastern side of Rochester Row, on the application of Mr. A. C. Martin. An iron and glass covered way at St. Ermin's Hotel, Caxton Street, Westminster, on the application of Mr. H. S. Jones. An addition at No. 70, Addison Road, Kensington, on the application of G. Trollope and Sons, and Colls and Sons, Limited, on behalf of Sir Edward Poynter, Bart. A parish hall on the western side of Brockley Rise, Lewisham, on the application of Mr. G. M. Silley. Rebuilding of the "Royal Oak" public-house, abutting upon Tooley Street and Morgan's Lane, Bermondsey, on the application of Mr. E. Faux. Alterations at the electricity sub-station, Aybrook Street, St. Marylebone, on the application of Mr. H. T. A. Chidgey. An addition to the electricity generating station on land adjoining the River Wandle and the Causeway, Wandsworth, on the application of Mr. C. Stanley Peach, on behalf of the County of London Electric Supply Company, Ltd. Alterations at Nos. 228-229, Upper Thames Street, and Nos. 123 and 125, Queen Victoria Street, City, on the application of Mr. W. Campbell Jones.

New Municipal Works.

The Local Government Board have held or have decided to hold enquiries into proposed expenditure by public bodies as follows:

Water Supply.—Budleigh Salterton Urban District Council, £5,150; Aberystwith Rural District Council, £4,480, for Cyfoeth-y-Brenin and Henllys (October 21st); Maldon Rural District Council, £5,500 (October 23rd).

Sewerage, Drainage, and Sewage Disposal.—Skipton Urban District Council, £1,340; Edmonton Urban District Council, £3,380 (October 21st); Westbury Urban District Council, no amount stated (October 23rd); Clevedon Urban District Council, £3,500 (October 24th).

Street Improvement.—Barnes Urban District Council, £9,440 (October 20th); Poole Borough Council, £11,835 (October 21st); Thurnscoe Urban District Council, £1,325 (October 22nd); Rotherham Borough Council, £1,500; Portsmouth Borough Council, £4,009 (October 23rd); Stockport Borough Council, £12,865 (October 24th).

Various.—Barnes Urban District Council, slab-making plant (October 20th); Nottingham Corporation Public Baths, £11,000; Frinton-on-Sea Urban District Council, sea defences, £1,950 (October 21st); Horsforth Urban District, refuse destructor, £2,250 (October 22nd); Normanton Urban District Council, housing, £16,475 (October 23rd); Leicester Borough Council, electricity undertaking, £52,350; Allerton Urban District Council, town planning, no amount stated; Northwich Urban District Council, housing, £8,500 (October 24th); Beckenham Urban District Council, town planning, no amount stated (November 4th).

THE CONDITIONS OF BUILDING AND ENGINEERING CONTRACTS.—IV.

Being an Explanation of the Clauses of the General Conditions of Specifications and the Legal Decisions affecting them.

SPECIALLY CONTRIBUTED BY E. J. RIMMER, M.Eng., B.Sc., A.M.Inst.C.E., of Lincoln's Inn and the Northern Circuit, Barrister-at-Law, and KENNETH G. THOMAS, B.A., LL.B. (Cantab.).

(Continued from page 378, No. 978.)

Parentetical numbers in the text refer to cases noted at the end of each section.

CHAPTER II.

ADDITIONS, OMISSIONS AND VARIATIONS.

The clauses dealing with these subjects usually provide: (i.) that in executing the work the Contractor shall make such Alterations, Omissions and Variations as the Engineer shall direct him to make; (ii.) that no Alteration, Omission or Variation shall annul or invalidate the Contract but shall be taken to be made under the Contract; (iii.) that no such additions or variations shall be deemed to be extra work and that the Building Owner shall not become liable to any charge in respect of them unless the instruction for the performance of the same shall have been given in writing by the Engineer nor unless such instruction shall state that the work is to be the subject of an extra or varied charge; (iv.) that the value of such extra work shall wherever practicable be agreed upon before it shall be commenced but that the value in every case shall be determined by the Engineer, whose decision shall be final and binding, but who, in making such valuation shall be guided by the prices for analogous construction set out in the Bill of Quantities so far as applicable; and (v.) that if it is necessary to execute extra work "by the day" the prices set out in the Schedule of Wages shall be applied.

There are generally provisions requiring the Contractor to present his claims for extra work at specified intervals (usually monthly) and his claim for extra work "by the day" each day, with an exact list of persons employed. These provisions usually make the presentation of such claims on prescribed forms and within the fixed periods a condition precedent to the liability of the Building Owner to pay such claims.

An addition to or variation from the contract work may be one of three things: (a) It may be part of the original work contemplated by the contract and necessary for its proper fulfilment in accordance with the plans and specifications. If so, it will be impliedly included in the contract price and not the subject of an extra charge. (b) It may be an "extra"—that is to say, not either expressly or impliedly included in the contract price, but of a nature collateral with the contract work so as to be, by the above provisions, subject to all the conditions of the contract. It will, therefore, be necessary, in order to satisfy the condition of the contract, that it is ordered in writing by the engineer, and is claimed in time and manner prescribed by these conditions. (c) It may be work so entirely outside the contract work that the order for it and the work under it will be given and done, respectively, outside the conditions of the contract. (16.)

The engineer is, by the provision of the contract set out above, in effect, made the judge of the question whether additional work to be done is an extra or part of the original contract work, because it is required by the provisions that the building owner shall not become liable to any charge in respect of it unless the engineer shall give an order in writing. It has

been said that "the engineer is, under such a clause, the supreme judge as to extras and alterations. (17.)"

The question whether the work is an extra or wholly outside the contract work is a question of law, and therefore cannot be conclusively decided by the engineer.

Extra Work within the Contract.

Under the provisions set out above, the absence of an order in writing is fatal to a contractor's claim for extra work unless (a) the building owner interferes with the discretion of the engineer in determining what shall be deemed an extra, or (b) the building owner, himself or by his engineer, waives the condition that the order shall be in writing.

A recent case (18) illustrates an interference by the building owner which makes this provision inapplicable. During the progress of the work the building owner insisted upon the execution of certain works which he alleged were included in the contract, but which the contractor maintained were extras. It was held that an arbitrator was justified in assuming an implied promise to pay for the work although no order in writing was given.

A building owner may expressly waive the condition that an order for extra work shall be in writing, but whether he can impliedly do so appears to be a difficult question. The mere knowledge of the building owner that work is being done without an order in writing does not appear to be enough to constitute a waiver because it is not for him to decide whether the work is an extra or not. On the other hand, in one case it was said by Lord Justice Turner: "I think it would be a fraud on the part of the company to have desired by their engineer these alterations, additions, and omissions to be made, to have stood by and seen the expenditure going on upon them, to have taken the benefit of that expenditure, and to refuse payment on the ground that the expenditure was incurred without proper orders having been given for the purpose." (19.)

It is submitted, therefore, that if the engineer informed the building owner that certain work was to be subject to an extra charge, the building owner would not then be able to set up in defence to an action brought to recover the amount, that the order was not in writing. Thus a progress certificate which notifies the building owner that money has been paid in respect of work collateral with contract work may possibly preclude the building owner from setting up this defence. It must not, however, be thought that the progress certificate in such a case is an order for extras—it is, in its relation to the question under discussion, merely an intimation to the building owner that extra work has been done and certified for. If the building owner is a public authority bound to contract under seal an order for extras, unless given in the form prescribed by the contract, must itself be under seal, and there can be no waiver of the condition unless under seal. (20.) (See also Introduction.)

A final certificate by the engineer is usually conclusive and binding upon the parties to the contract, and the fact that orders for extras have not been made in

writing, although so required by the contract, will not justify a refusal by the building owner to pay upon a final certificate which includes charges for extras. (21.)

Extra Work outside the Contract.

It is impossible to lay down any definite rules for testing whether additional work is outside the original contract or not. It is a question of the interpretation of the contract and therefore one of law. If the work cannot be said to have been expressly or impliedly contemplated by the plans and specifications nor of a nature collateral with the contract work it will be deemed to be the subject of a new contract. An illustration of this has been furnished by a case referred to above (16) where ships' stores (spare masts, yards, sails, etc.) were held to be outside the contract for the building of a warship. Work which is ordered after the final certificate has been given, whether cognate to the contract work or not, appears to be made under a new contract, as also does work of repair after completion which is not provided for by the Defective Work or Maintenance Clauses. (See *post*, Chapter III.)

The conditions of the original contract do not apply to extra work which is the subject of a new contract, and therefore the compliance with the provisions set out above is not a condition precedent to a claim for payment. There is an implied term of the new contract that the contractor shall be paid for the work. The arbitration clause does not apply to such a contract, and the amount to be paid may, if the contractor wish it, be assessed by a jury. Moreover, the existence of a new contract may waive the conditions of the original contract. For example, in a case where the contractor agreed to build certain houses by a certain day subject to a penalty clause for non-completion, it was held that the ordering of other houses to be finished within a reasonable time waived the original penalty clause and applied the condition of completing within a reasonable time to the original as well as the new contract. (22.)

Two defences are open to a building owner to a claim for payment for work under a new contract ordered by the engineer: (a) That the engineer who ordered the work was not authorised by him to enter into a new contract, or (b) that being a public authority the agreement is not valid because not under seal.

In respect of the first of these two defences it may be successfully urged that the engineer is merely an agent for the building owner to order extras in a particular manner and not for entering into new contracts outside the original contract. This will be a good defence provided that the principal (*i.e.*, the building owner) has not ratified the contract so entered into by the engineer. Sufficient ratification would, it is submitted, be the payment of money under the contract or a submission to arbitration as to whether the work is an extra or not.

[In order to protect the building owner against claims made in respect of new contracts entered into by the engineer, the authors suggest that a clause might be inserted in an

engineering contract stating in unambiguous terms that the engineer shall not be deemed to have power to enter into any new agreement on behalf of the building owner unless expressly authorised by the latter, and that any such agreement shall not be binding upon the owners or the subject of any claim by the contractors unless the instructions for its performance shall have been given in writing by the engineer and unless all the terms of the contract are reduced to writing and signed by the engineer. It might also be well to add that any such new agreement shall be deemed to incorporate all the clauses of the original agreement which are applicable, including the certificate, maintenance and arbitration clauses.]

If this defence is successful the contractor may sue the engineer for breach of warranty of authority if he thinks and has reasonable grounds for thinking that the engineer was authorised to make such a contract on behalf of the building owner. In respect of extras, however, the authority of the engineer is so clearly laid down in these clauses (viz., that the order must be executed in writing) that the contractor must be held to have the fullest knowledge of it.

(With regard to the invalidity of contracts made with public authorities which are not under seal, see Introduction, *ante*, p. 357.)

Payment of Extra Work.

These provisions of the contract also prescribe the manner in which the payment for extra work or deductions for omissions shall be computed. They are to be valued by the engineer, who shall have regard as far as possible to the prices set out in the bill of quantities and schedule of wages.

Where the work executed as extra work is exactly analogous to other work which has been done, and which is priced in bills of quantities, the engineer will use this price for the valuation of the additional work. Where there is no work exactly analogous the engineer will take the price for similar work in the bill of quantities and add to or deduct from it what he considers proper, having regard to the greater or less difficulty experienced in executing the work. For example, there may be a price in the bill of quantities for excavation of a class of material at a certain level. If so, excavation at the same level of the same class of material will clearly be exactly analogous and, therefore, subject to the same rate of payment, but excavation at a different level or of different material may lead to a variation in the rate of payment.

If there is no price in the bill of quantities for work at all analogous to the additional work ordered then the amount of payment for it may be arrived at in several ways: (1) The value of the work may be decided upon and agreed by the contractor before the work is commenced; (2) the contractor may present a statement of the *prime cost* of all labour and materials to the engineer, who will allow the addition of a certain proper percentage for profit and administration; or (3) the contractor may present a statement of the days and hours of employment of men and plant in executing the work, upon which statement the amount to be paid will be arrived at by reference to the *Schedule of Wages* 335 (4) (d) attached to the contract.

It is usual to make the final decision of the amount one for the sole discretion of the engineer, using his skill, judgment and experience as a valuer, and therefore not subject to revision by an arbitrator.

It may be noted generally that when a building owner requires alterations in the work, but does not wish them to be carried out by the original contractor, that unless the original contract contains a clause permitting the building owner to employ other contractors or workmen on the site

the original contractor can claim to carry out such alterations.

OMISSIONS.

Omissions for which a deduction in price may be made by the building owner mean omissions altogether from the contract work. A building owner is not entitled to withdraw work from the contractor and give it to another to be carried out, unless the contractor has failed in his obligations under the contract.

Omissions from the contract work may cause a serious loss to the contractor. As has been explained in the introduction, a contractor very often requires to expend considerable amounts of money in "on costs," i.e., staff, temporary works, etc. He calculates these and distributes them over the prices in the bill of quantities on the assumption that the whole of the work in the bill of quantities is going to be carried out. If some of the work is omitted, he will stand to lose those "on costs," for which he has looked to the omitted work to repay him. An extreme example may be given in the case where a contractor undertakes to construct two dry docks, and for which it is necessary to erect a temporary coffer dam. He will naturally distribute half the costs of the temporary dam over the price for each dock, and if the building owner decides to omit one he will lose half the cost of erecting the dam.

The question therefore arises whether the contractor may recover from the building owner the loss on his "on costs" account due to omissions from the contract work, and further, whether he may recover loss of profit on the work he anticipated would be done. There is usually a clause in every important contract to the effect that the building owner shall not be liable upon a claim for loss of profit, but the question whether a contractor can claim upon his "on costs" account is generally left open. Although it is quite clear from the provisions of the contract set out above that the omission of work does not invalidate the contract, it is submitted that a contractor would have a good claim for loss of "on costs" in a case where there was any serious and considerable omission from the original contract. It is upon the representation that the work is going to be of a given magnitude that the contractor expends money upon staff and temporary work, and he is therefore entitled to require the building owner to compensate him if this representation proves to be untrue.

Cases referred to in the Text.

(16.) *Russell v. Sa da Bandiera* (1862) 32 L.J.C.P. 68; 13 C.B. (W.S.), 149; 134 R.R. 488.—R. contracted to build, for the Portuguese Government, for a lump sum a warship of the class A.1. 13 years at Lloyd's and to deliver the same by a certain specified date "fitted, found and equipped in manner similar in all respects to that which is practised with ships or vessels of the same class in H.M.'s Navy under contracts with the Admiralty, except machinery, armament, furniture, stores, plate, linen, glass, crockery and optician's instruments." Any extras were to be ordered in writing and the price thereof was to be previously agreed. R., at the request of S.'s solicitor (and without prejudice to his right to be paid for them if not within the contract) supplied certain other articles which S. claimed were necessary to the complete equipment of a warship of her class built under a contract with the Admiralty. The arbitrator found that articles of this class—spare masts, yards, sails, etc.—were not usually supplied by contractors to the Admiralty, but were supplied from Government stores to vessels when going out on active service. *Held*: That the said articles were not within the contract and that R. was entitled to be paid for them as a *quantum meruit*.

(17.) *Goodyear v. Weymouth Corporation* (1865) 35 L.J.C.P. 12.—A contract for the erection of a market house contained the clause that no deviations in the way of extras or omissions should be made without the written authority of the defendants' architect; that

no claim for payment for extras should be made without such written order being produced; that proportionate payment should be made from time to time on a certificate of the architect that the payment was a proper one; and that the architect's opinion as to the value was to be final, as also his decision as to the value of extras and additions, which was to be regulated by the contract price. The architect certified for payment of a sum in which extras and additions were included. *Held*: That neither of the parties could raise the question as to whether there was a sufficient order in writing for the said extras and additions; that a pump, drain, etc., though separately ordered, came within the meaning of works connected with the contract; and that the architect's decision as to their value was final. Willis, J., said, "The certificate of the architect is an answer to all the questions, both as to the claim for extras under the contract and the claim for works said to be independent of the contract, for which the plaintiffs claim the right to be paid, without the ordeal of an adjudication by the architect."

(18.) *Molloy v. Liebe* (1910) 102 L.T. 616.—L. contracted to construct certain buildings for M., and the contract contained a clause that no extras were to be paid for unless an order in writing from the employer and the architect was given for the same. M. insisted on the execution of certain works which he maintained were included in the contract, though L. asserted that they were extras. No order in writing was given for such works. On appeal to the Privy Council it was *held*: That an arbitrator was justified in inferring a promise on the part of M. to pay for the works either as included in the contract price or as extras.

(19.) *Hill v. South Staffordshire Railway Co.* (1865) 12 L.T. 63.—During the progress of the work an account was delivered by the contractors to the building owner, in which was included an account for extras charged for by day work and time. These accounts were the subject of much discussion between the parties, but no settlement was arrived at. Ultimately the engineers refused to certify, but it was held that the contractors were entitled to payment for alterations and additions claimed upon the account, although no proper orders had been given.

(20.) *Lamprell v. Billericay Union* (1849) 3 Ex. 283, 18 L.J. Ex. 282.—L. contracted with the guardians to build a workhouse for a specified sum, and the contract required that any orders for extras should be given in writing by the architects. Additional work was done without such written authority and L. claimed for payment for such work. It was urged that though for want of written instructions L. might have no remedy under the contract, yet, as the defendants had accepted the additional works, L. had a right to be paid for them on a *quantum meruit*. *Held*: That he was not so entitled, as the defendants, being a corporate body, were incapable of making a new contract by post.

(21.) *Connor and Olley v. The Belfast Water Commissioners*.—The contractors executed certain alterations and additions. The orders for them by the engineer were not in writing, nor were accounts sent in for them as required by the contract. The engineer, however, gave a certificate for the extra work, and it was held that this certificate precluded the defendants setting up either variance of the conditions of the contract as a defence to payment of the certificate.

(22.) *Thornhill v. Neats* (1860) 8 C.B.N.S. 831.—Facts sufficiently set out in text.

(To be continued.)

UNIT COSTS OF SCHOOLS.

The total costs of forty-seven school buildings in Boston are given in the annual report of the Schoolhouse Department, and from these figures the cubical contents and the number of pupils accommodated, costs per cubic foot, and per pupil, are derived. The total costs range from \$23,000 (about £4,791) to \$329,000 (about £68,500), the number of pupils per school varying from 160 to 1,832. The costs per cubic foot are very uniform, averaging between 22 and 23 cents (11½d.), two running as low as 17 cents (8½d.), and one as high as 28 cents (1s. 2d.). The costs per pupil fluctuate more widely, ranging from \$117 (about £24) to \$208 (about £43), exclusive of several high school and normal school buildings, in which the cost per pupil is as high as \$940 (about £195). The figures are further divided into the building proper, heating, plumbing, and electrical equipment. The buildings proper cost from 76 to 86 per cent. of the whole.

THE NEW LOOP TUNNEL AT CHARING CROSS.

Rapid progress is being made with the construction of the loop tunnel from the existing terminus of the Charing Cross and Hampstead Railway at Charing Cross. The object of this scheme is to provide facilities for interchange of traffic between the Baker Street and Waterloo, the Hampstead, and the District Railways. The new tunnel (says a writer in "The Times' Engineering Supplement"), half a mile in length, is in the form of a loop under the River Thames, and has been driven under compressed air. This work is now completed, and the whole of the permanent way laid ready for traffic, but the new embankment station cannot yet be brought into use because the escalators and the new footway passages are still under construction. The escalators giving communication to the Baker Street and Waterloo Railway are, however, in a very advanced state, the tunnelling having been completed, and preparations are now being made for the installation of the necessary machinery. In the case of the two escalators which are being provided for communication between the District Railway platforms and the Hampstead line, the tunnels, which, owing to the presence of water-bearing ballast, are being driven under air pressure, will not be completed for some weeks. The design of the four escalators follows that adopted for Liverpool Street Station, one of each set being made reversible. The rise of the escalators for the District and Baker Street and Waterloo line is 32 ft., and between the District and Hampstead line 28 ft. The interchange subway is 10 ft. in diameter. It has been necessary, owing to the presence of water in the subsoil, to enclose the whole of the machinery for the operation of the four escalators in water-tight cast-iron chambers. The motors installed are each of 40 h.p.

THE LONDON MUSEUM.

The work of transferring the London Museum to its new home at Stafford House is now nearly accomplished. Thirty-three thousand exhibits have been removed from their place at Kensington Palace without damage. The Roman boat, and the relics of criminal London and the other contents of the annexe, are now being removed. The removal and rearrangement of the exhibits has been undertaken by Mr. Félix Joubert, under the direction of Mr. Guy Laking.

The noble apartments of Stafford House form an admirable setting for the collection, in the classification of which a new principle will be followed. At Kensington Palace the exhibits were classified according to the object. For instance, there were separate sections devoted to spoons, to pottery, to costumes, etc., of all ages. At Stafford House each section will be arranged to represent a period, and it will contain a miscellaneous collection of objects relating to it. In this way each section will present a complete view of the life of London in a particular age, as exemplified by the objects commonly in use. Strict chronological order will be maintained. On the ground floor there will be rooms devoted to the paleolithic age, the neolithic age, the bronze age, Roman London, a section representing London from the sixth to the tenth century, and finally a room devoted to London in the fifteenth century. Ascending the grand staircase, the visitor will enter the sixteenth century

room, and then sections relating to the Commonwealth and the Restoration. There are two rooms devoted to the Charles II. period. Two large galleries will contain objects of the eighteenth century, and there are other apartments devoted to more modern times, from the beginning of the nineteenth century. The large architectural exhibits will be accommodated again in chronological order in the basement. Here, also, will be criminal London, and the Roman boat, for which a large pit has been prepared. The structural alterations which were necessary at Stafford House have now been completed, but the work of breaking up and rearranging the collection must occupy considerable time. It is not expected that the Museum will be open to the public before the beginning of next year.

THE PRESERVATION OF LONDON STATUES.

The statues of London are mostly derided by foreign visitors, but an exception must be made in the case of Auguste Rodin, who, while in England a few months ago, made the round of London's monuments, and declared that a great deal of the statuary was exceedingly good.

The apparent ugliness of most of the statues in the metropolis is largely to be attributed to the soot and grime which accumulates upon them. Even now the statues in Trafalgar Square are in the hands of the cleaners. It is found necessary by the Office of Works to submit all the bronze statuary under their control to a careful cleansing process every six or eight weeks in order to preserve it from the corroding effects of the smoke-laden atmosphere. Despite recent efforts to abate the smoke nuisance, the smoke gauges show that the London atmosphere still contains some 460 tons of soot per square mile per annum. The atmosphere of Paris has but 160 tons. Bronze surfaces suffer from the deposit of soot, not on account of the accretions of carbon, but through the acids which are precipitated with it. Hence the reason for constant washing operations. Ornamental bronze work in the Victorian period was very often maintained by the simple process of painting. This was the case with the lamps and gates at the Marble Arch, which the present generation of officials at the Office of Works, on having them scraped, were surprised to find were made of bronze. When the paint was removed the metal underneath was discovered to be in an excellent state of preservation. The method now employed, however, is held to be quite as efficacious. It consists of frequent cleansing and the application of a thin coating of wax-like composition.

Most of the chief monuments in the metropolis are under Government care, but the London County Council have charge of those in their parks and the Embankment Gardens, in addition to the Boadicea at Westminster Bridge and the Gladstone group in the Strand.

Instances have been known of statues being without owners or caretakers, a case in point being that to William III., in St. James's Square. It was the result of a bequest made by Samuel Travers, who died in 1724. The money was lost sight of until discovered in a list of unclaimed dividends in 1806, two years after which the equestrian statue was erected. But no one was charged with its maintenance until, on the initiative of the Office of Works, it was taken over by the Government and repaired.

THE LIGHTING OF SCHOOLS.

In the course of a paper on "Some Considerations on the Brightnesses of Lights," given before the National Gas Congress and Exhibition at Shepherd's Bush, Professor Silvanus P. Thompson said that in a school the one thing that was most important to know was whether there was sufficient illumination afforded at the places where the scholars read and wrote and where the teacher wrote on the blackboard. During the last two years the Illuminating Engineering Society had had valuable reports prepared for it by three special committees. One of these reported on school lighting, and the committee recommended that for ordinary work in reading and writing the minimum illumination at any desk should not be less than 2 candle-ft., some members of the committee favouring a minimum of 2½ candle-ft. For special work, such as drawing, stitching and the like, the minimum recommended was 4 ft.-candles. For blackboard illumination 2 candle-ft. was admitted to be sufficient only for small classrooms where the students are within 20 ft. The lamps for lighting the blackboard should be screened from the eyes to prevent glare. The committee laid some stress on the use in general of shades or globes which diffused the apparent brightness of the source over a considerable area so as to reduce the "be-dazzlement" caused by lights that were too concentrated. It went without saying that the committee favoured the use of indirect lighting, in which the rays of the lamps were intercepted and thrown upon ceiling or walls only, so that a soft, diffused light alone reached the eye. The disadvantage of this method was that it was almost shadowless. For reading and writing this was good, but the visibility of solid objects and raised surfaces greatly depended on the presence of shadows, and for these a direct illumination was preferable.

BRIDGE BUILDING IN BIRMINGHAM.

With the enlargement of the city boundaries the Birmingham Corporation have found it necessary to undertake the rebuilding of no fewer than six bridges in various parts of Greater Birmingham. The work, which will cost £30,000, is to be carried out under the supervision of the city surveyor, Mr. H. E. Stilgoe.

King's Road Bridge, Hay Mills, already completed, is to carry that thoroughfare over the Warwick and Birmingham Canal. The width of the old bridge was only 13 ft. 6 in., but the new structure provides for a roadway 42 ft. wide. The arch of the bridge is of brick, and is a single span of 28 ft. The parapet walls are also of brick, and it has been necessary to build retaining walls to support the arches. The widening of the road occasioned by the enlargement of the bridge cost £5,025.

Another bridge over the River Cole, in Forman's Road, Sparkhill, is to be 42 ft. wide, with two arches each with a span of 20 ft. The bridge itself is of brick, with parapets of wrought iron. The total cost of the work is £6,250.

One of the most important of the bridges is in process of construction in Stratford Road over the River Cole. Originally there were two bridges at this point. The width of the road was only 31 ft., but the new bridge which replaces the two old ones will have a width of 60 ft. It is of brick, with stone facings, and is in two

spans. The total cost, including the diversion of a part of the river, will be £6,000.

Of two bridges to be constructed in the Erdington district, one is in Brookvale Road and the other under the London and North-Western Railway at Witton Station. The former will have a width of 50 ft., and is to be built with brick abutments and steel girders. The bridge at Witton will have one span of 50 ft., and will be of similar construction.

A new bridge, 42 ft. wide, will cross the River Rea at Aston Church Road. The decking of the bridge is somewhat unusual, owing to the extraordinary provision which has to be made for the accommodation of a large gas main and the electricity cables, of which there are about 100. The abutment and piers are of brickwork, and the superstructure is of steel girders and troughing, the parapet walls being of brick. The cost is estimated at £5,000.

EXCAVATIONS AT SONNING.

The British Archaeological Association held their autumn meeting last week, when a visit was paid to the excavations now being carried out by the President, Mr. Charles E. Keyser, on the site of the Bishop's Palace, in Holme Park, Sonning, near Reading. Mr. Keyser said that he had been engaged on the work since May, 1912, and up to the present time about two acres of ground had been excavated. A great depth below the surface of the soil had been reached. One of the difficulties of the work was that he was not able, as in the case of Old Sarum, to cart the rubbish away clear of the ruins. The members were on the site of what was a country residence of the Bishops of the diocese from early times. It was beyond question that a large house stood there, and probably in the thirteenth century it took the place of an earlier building. A great hall was added in the fifteenth century, and there was a tower, of which the foundations were still to be seen, while the odds and ends of a staircase and steps had been found. In 1574 the Bishop of Salisbury, who was then in possession, made an exchange of the Palace with the Crown, and the Crown afterwards handed the building over to the Rich family, who were not satisfied with the existing house, but built another, using the old one for spoil. Many of the finest fragments were found in a garden wall. It seemed that every possible effort had been made to obliterate the original arrangement on that site and to puzzle the antiquary.

Mr. Harold Brakspear, who described the architectural features of the ruins, said he had been struck with the similarity of the building to that of the Palace at Lincoln. It had to be remembered that the Bishop in those old times required more than the dwelling-house of the Bishops of to-day; he had to have an enormous hall and kitchen for the entertainment of his visitors. The hall at Sonning was aisled, something like St. Mary's Hall at Winchester, and in the middle was a hearth, of which some of the tiles remained. The great kitchen, beyond the buttery and pantry, had two enormous fireplaces with tiled backs, and on the east side of the hall was what he thought would develop into a square court with a passage round it like a little cloister. There was also another building, which he thought would be found to contain a chapel. There seemed to be no building of any great size between the thirteenth century and the fifteenth century, when the place was enlarged owing to the Bishop making it his favourite seat.

BOOK NOTICES.

A Manual on Working Drawings.

It would be a most damaging commentary on the technical education that is available to the craftsman if we had to confess that it did not occasionally produce at least a clever draughtsman. Naturally enough, it is usually a carpenter and joiner who develops a respectable—and in rare instances, a consummate—degree of skill in constructional drawing, for not masonry, even, affords equal scope for high development.

It is curious to observe how certainly drawing betrays its origin. Handwriting is hardly more characteristic of individuality, and, moreover, one can tell at a glance the nationality of its author, and whether he has been trained in the office or in the workshop. The drawings in Mr. George Ellis's book are excellent models of draughtsmanship, but in their general appearance they do not betray the mannerisms of the architectural draughtsman. They are, nevertheless, models of clearness and accuracy, and on perusal of the text which they illustrate it becomes evident that their author is not merely an accomplished draughtsman himself, but is thoroughly conversant with the underlying principles of good draughtsmanship, and well able to expound them. He has produced, in fact, a book that deals with this subject more thoroughly than any we have yet seen, and, in particular, the planning and graphic description of work, for the use of artisans in the workshop, and known as "setting-out," is treated with a fulness not hitherto attempted. The eleven chapters deal respectively with the various methods of drawing in use (orthographic, isometric, oblique, and perspective projection; freehand drawing and sketching—all these items being afterwards assigned each a separate chapter—practical geometry; working drawings), drawing instruments and appliances, hints on draughtsmen's work, and lettering. The author has the great advantage over the architectural draughtsman of approaching the subject from the practical side, and his intimate knowledge is of peculiar value when he comes to deal with, for instance, the more intricate problems in staircasing, oblique and circle-on-circle work, and other crucial examples of applied geometry. He has produced a practical manual of great intrinsic value, not only to those who have to prepare drawings, but to those who have to interpret them. The lettering on the drawings is peculiarly neat and effective.

Modern Technical Drawing. A Handbook, describing in detail the Preparation of Working Drawings, with special attention to Oblique and Circle-on-Circle Work, Orthographic, Isometric, and Oblique Projections, Practical Perspective, Freehand Drawing and Setting Out, also various styles of lettering. By George Ellis. Illustrated by nearly 300 examples. London: B. T. Batsford, 94, High Holborn. Pages viii. + 200, 8 in. by 5½ in., price 5s. net.

The Law Relating to Town-planning.

Legal guidance which makes one wise, not after the event, but before it, and may often prevent litigation, is a distinctly valuable commodity; and such guidance is peculiarly necessary with respect to a comparatively new movement like town-planning, in which experience and precedent are still in the making. Mr. Harry Barlow sets forth Parts. II. and IV. of the Housing, Town-planning, etc., Act, 1909; gives, in the form of footnotes, the Memorandum of the Local Government Board on each section of such parts, with (as occasion may require) the incorporated sections of other Acts referred to in the

text, and adds explanatory footnotes and cross-references. Such a manual is of obvious utility to those who are in any way concerned in town-planning schemes, whether constructively or administratively.

The Law Relating to Town Planning in England and Wales. A Handbook for Local Authorities, the Legal Profession, Landowners, etc. By Harry Barlow, of Gray's Inn, Barrister-at-Law. London: Eyre and Spottiswoode, Ltd., East Harding Street, E.C. Pages xvi. + 128, 5½ in. by 7½ in., price 6s. 6d. net.

Builders' Quantities.

Books on builders' quantities are becoming rather numerous, but Mr. Ballard's little manual cannot be dismissed as superfluous, as it forms a remarkably clear and straightforward introduction to the subject. Primarily designed to meet the requirements of the City and Guilds of London Institute syllabus, it should serve this purpose exceedingly well, while the young architect who masters it will have laid a sound and solid foundation for more intensive study on the same lines.

Builders' Quantities. By Wm. Edgar Ballard, Assoc. M.Inst.C.E., P.A.S.I., etc., Lecturer on Building Construction and Quantities, City of Birmingham Municipal Technical School, With Diagrams. London: Longmans, Green and Co., 39, Paternoster Row. Pages viii. + 124, 5 in. by 7½ in., price 2s. 6d. net.

Two Handy Pocket-books.

Pocket-books that are really faithful to the name are becoming more rare as technology grows more complex; but, by means of careful compression and the employment of small but clear type, the International Correspondence Schools, Ltd., have succeeded in producing two neat and attractive little volumes that are quite portable in the pocket. Each of them is packed with useful memoranda, which have been very judiciously selected and compressed, and each is a *multum in parvo* of practical information.

Architects' and Builders' Pocket Book. "Concrete Engineers' Pocket Book." 422 and 368 pages, 5½ in. by 3½ in., price 5s. each. Kingsway, London: International Correspondence Schools, Ltd.

PRACTICAL CEMENT TESTING FOR REINFORCED CONCRETE.

By means of facilities afforded by the directors of the Associated Portland Cement Manufacturers, Ltd., modern methods of cement testing were studied very practically on Friday, October 10th, at the Westminster Technical Institute, in the course of a series of lectures on reinforced concrete. Mr. Cox, the chief chemist of the company, aided by expert gaugers, gave a complete demonstration to a large audience of engineers and architects of laboratory and site tests, explaining the precautions to be adopted and the results to be expected under different conditions. Numerous specimens were exhibited of suitable and unsuitable aggregates and of tested specimens of good and bad cements and mortars. The evening's work demonstrated the need for a small, practical, well-illustrated book differentiating between delicate laboratory tests and such tests as could be carried out by a busy engineer or architect or their assistants.

Hope for Cloth Fair.

The committee having the question of the Cloth Fair improvement under consideration have decided not to recommend it in its entirety to the Court of Common Council. They believe that the case will be met by a reference to the Sanitary Committee in order that certain houses may be dealt with under the powers given to medical officers of health.

SOCIETIES AND INSTITUTIONS.

BRISTOL SOCIETY OF ARCHITECTS.

The above society held its opening meeting on October 13th. The occasion was one of considerable importance, Sir Frank Wills, a former president, presenting the Society with a badge of office. In the course of his remarks, Sir Frank Wills urged the younger members to adorn the noble Art by avoiding everything degrading, by integrity of conduct, and by encouraging only a manly and honourable rivalry. In asking the Society's acceptance of the badge, he pointed out that the majority of the societies allied to the R.I.B.A. now possessed this insignia of office; further, the Bristol Society was held in great esteem by the R.I.B.A. as one that was doing excellent work in the provinces.

The President (Mr. G. H. Oatley, F.R.I.B.A.), having received the emblem of office, said they were all familiar with the many instances of Sir Frank Wills's help and encouragement. On behalf of the council and members, he sincerely thanked the donor for this latest expression of interest.

Mr. R. C. James, F.R.I.B.A., seconded the vote, which was carried with acclamation.

The jewel, which is in the form of an ellipse, with a gadrooned moulded frame enriched with architectural symbols, is of gold (executed by the Bromsgrove Guild) and has a centre of enamelled work containing the City Arms, and the inscriptions: "The Bristol Society of Architects"; "Allied to the Royal Institute of British Architects." Two links of the chain contain the names of past presidents, and amongst these appear Messrs. W. L. Bernard, Frank W. Wills, G. H. Oatley, Mowbray A. Green (Bath), J. Foster Wood, and the late Joseph Wood and H. Dare Bryan.

ROYAL TECHNICAL COLLEGE
ARCHITECTURAL CRAFTSMEN'S
SOCIETY.

The second meeting of the session in connection with the above Society was held on Friday, October 10th, Mr. T. G. Gilmore, A.R.I.B.A., President, in the chair. Mr. Alexander Gardner, I.A., delivered a lecture entitled, "The City Churches of Glasgow." He dealt with the nine churches controlled by the corporation, who, he said, collected all the seat rents and were responsible for the stipends and other expenses. He traced the origin and followed the history of each. The lecture was illustrated by lantern slides, which included plans of old Glasgow and a view of Glasgow Cathedral as it was before the western towers were removed.

THE ARCHITECTURAL ASSOCIATION.

The Architectural Association have arranged the following list of fixtures for the forthcoming session:—

October 27th.—Annual General Meeting. Presidential Address, by Mr. Curtis Green, F.R.I.B.A., and distribution of prizes.

November 10th.—Mr. H. M. Fletcher, M.A., F.R.I.B.A., on "Nationality in Art."

November 20th.—Conversazione.

November 24th.—Mr. L. March Philipps on "Our Debt to the Greeks."

December 8th.—Mr. W. H. Ward, M.A., A.R.I.B.A., on "Portuguese Architecture."

January 19th, 1914.—Professor C. H. Reilly, M.A., F.R.I.B.A., on "The Neo-

Grec Movement in Architecture in the Eighteenth and Nineteenth Centuries."

February 2nd.—Professor W. R. Lethaby, F.R.I.B.A., on a subject to be announced.

February 16th.—Professor Selwyn Image, M.A., on "The Serious Art of Thomas Rowlandson."

March 2nd.—Professor W. S. Purchon, A.R.I.B.A., on "Architecture and Environment."

March 16th.—Mr. Joseph Pennell, on "The Wonder of Work."

NEWS ITEMS.

Change of Address.

Mr. W. Fullerton, Licentiate R.I.B.A., has removed to "Rothbury," Empress Avenue, Woodford Green, London, N.E.

Glasgow Steeple Endangered.

Briggate Steeple, Glasgow, which dates from the latter part of the seventeenth century, is threatened with demolition.

Restoration of Pershore Abbey.

It is proposed to raise £3,000 for the immediate restoration of Pershore Abbey. The fabric is at present in danger of falling into ruin.

*Church Extension, Wooler,
Northumberland.*

An extension of Wooler Parish Church, erected from the design of Mr. A. B. Plummer, F.R.I.B.A., at a cost of £2,300, has just been opened.

Mansion House to be Renovated.

Extensive alterations and improvements are to be carried out at the Mansion House, London, which is said to be in a very unsatisfactory state of repair.

Huge Funds for Carnegie Trust.

The Carnegie Dunfermline Trustees have just received the text of the trust deed conveying the sum of £2,000,000 for the provision of libraries and other institutions throughout the United Kingdom.

A Correction.

We regret that a mistake occurred in a paragraph printed under Changes of Address in our last issue. Messrs. James Cormack and Sons, Ltd., have removed not to Caxton House, but to Caxton Street, Westminster.

Lectures on London Architecture.

Mr. J. M. W. Halley, Licentiate R.I.B.A., is giving, on Wednesday evenings, at 8 o'clock, a course of twelve lectures on "London Architecture," at Toynbee Hall, 28, Commercial Street, Whitechapel.

Bakerloo Railway Extension.

The extension of the Baker Street and Waterloo Railway from Edgware Road to the Paddington terminus of the Great Western Railway is practically finished, and it is expected that trains will be running into the new station at Paddington at the end of next month.

New School, Tregaron.

A new school, accommodating 140 children, has been built at Tregaron, Cardiganshire, from the designs of Mr. G. Dickens Lewis, Licentiate R.I.B.A., M.S.A., architect to the Education Committee. The total cost was £1,536, which works out at £12 16s. per head.

Australia's New Capital.

The Australian Government has arranged that Mr. Griffin, of Chicago, the architect who won the prize for a design of

the Federal capital, shall remain in Australia to supervise the planning of the city. It is officially announced that £150,000 has already been spent on the capital, and that £285,000 will be provided from this year's estimates.

The Liverpool Demarcation Dispute.

The Board of Trade arbitrator in this dispute (Mr. Thomas Smith) has determined "that it is bricklayers' work to fix rough concrete blocks for particular work." It will be remembered that the bricklayers struck against this work being given to plasterers.

Addition to a Yorkshire Hospital.

A new wing has just been added to the Hospital of St. John of God, at Scorton, near Richmond, Yorks, an institution founded in 1880 for the reception of incurable male patients. The addition, providing accommodation for 100 inmates, has been built at a cost of £14,000.

Dover Lighthouse and the Channel Tunnel.

The steel lighthouse, 110 ft. high, on Abbotscliff, Dover, which was erected about thirty years ago by Sir Edward Watkin as a landmark to show the shore end of the Channel Tunnel works, is at present being demolished. The lighthouse has been locally known for many years as "Watkin's Folly."

The National Cottage Society.

In view of the interest taken in the question of the housing of the working classes, a National Cottage Society is being established by a group of workers in the housing and town planning movement. The society proposes to act as the intermediary and advisory body for making the most of the co-operation which is possible between public and private enterprises in the various acts of Parliament.

Wesleyan Methodist Halls, Glasgow.

The Glasgow Wesleyan Methodists' Mission have just opened new halls in Bridgeton. Some three months ago they acquired the Greenhead Halls in James Street, and these, after reconstruction, are now capable of seating over 1,000 people in the area and gallery. There are on the ground floor, also two smaller halls, capable of holding 300 and 150 people respectively. Messrs. Sturrock and Wilson, of Glasgow, were the architects for the alterations.

New Station for Harrow.

In order to meet the continued growth of traffic to and from Harrow-on-the-Hill, the Metropolitan Railway Company are now constructing a new station on their Harrow and Uxbridge line. The station, which is to be known as West Harrow, will be situated on the Vaughan Road, about three-quarters of a mile on the Uxbridge side of the present Harrow-on-the-Hill Station, and will serve a large residential district.

Glasgow Building Trade: Prosperous Year.

At Glasgow Dean of Guild Court recently it was stated that the total figures of the past year were considerably in excess of the total for any of the previous six years, and that was primarily due to the extension of the city boundaries. Even within the old area of the jurisdiction of the Court the building trades had had a more prosperous year than they had had for some time. The number of linings had gone up from 322 in the previous year to 499, and the valuation of the work authorised showed an increase of £416,574.

SPECIAL LEGAL REPORTS.

Action against Builders :—Underpinning a Wall.

Kirkby v. Chessum and Sons: Commissioners of H.M. Works and Public Buildings Third Parties.

October 14th. King's Bench Division. Before Mr. Justice Avory and a Common Jury.

This was an action by Mr. F. Kirby, of High Road, East Ham, against the defendants, Messrs. Chessum and Sons, builders and contractors, claiming damages for trespass, the Commissioners of H.M. Works and Public Buildings being third parties.

Mr. Colam, K.C., Mr. Morton Smith, and Mr. R. Fortune appeared for the plaintiff, and Mr. R. Acland, K.C., and Mr. G. A. Scott for defendants, Messrs. Chessum and Sons. Mr. Lowenthal appeared for the third parties.

Plaintiff's case was that he had occupied the premises at East Ham for twenty years, and when the house was built a portion of the wall projected slightly on to the adjoining land, and the eaves also projected slightly beyond the face of the brickwork. That had existed for more than twenty years. The next building was used as a small post office, and was separated from the plaintiff's house by a passage. The Post Office required the adjoining building in order to construct larger premises, and plans were prepared which brought the new building under the plaintiff's eaves and over his footings. This plan was abandoned and another substituted, in which the walls were in a different position and which necessitated the scaffolding being put on the plaintiff's garden. Permission was sought to do that, but plaintiff would only consent on receiving £5 for the privilege. This the builders declined to pay, and said they would do without it. In June of last year, having put up a big hoarding around the building, they proceeded to excavate below plaintiff's property, and without communicating with him they dug a big hole, it was alleged, under his floors and put in hard masonry, cutting away or burying in the masonry the plaintiff's footings. This they did for a distance of 14 ft. The Post Office blamed the builders, and the builders the Post Office.

Mr. C. J. Dawson, an architect and surveyor, who had examined the premises, said that there were cracks in the plaster or walls, which he attributed to the underpinning.

Cross-examined: He could not tell how the underpinning was done because it could not be seen, but as far as it was possible for him to see it appeared to have been well done.

Sir John Bethell, M.P., called as a witness for the plaintiff, said he was a land agent and surveyor, and for some years had looked after this property for the plaintiff. The underpinning had been done properly, but it was probable that a cellar would have to be constructed below the shop, and in that event difficulty and expense would arise from the necessity to cut away the work done by the defendants.

Mr. Acland, K.C., for the defendants, contended that the underpinning became necessary owing to the walls being in a rotten state, and that the work had been done satisfactorily. This was admitted by the plaintiff's witnesses, and yet it was, said counsel, sought by the plaintiff to recover damages for what was really only a technical trespass.

Mr. Rutherford, architect and surveyor of H.M. Office of Works, and Mr. F. J. Lawrence, a quantity surveyor, gave evi-

dence for the defence. The former witness said that it was urgently necessary that the underpinning should be carried out expeditiously.

The jury found for the plaintiff, assessing the damages at £20.

A point of law was raised by the defendants' counsel as to permanent injury having been done to the reversion, upon which his lordship reserved judgment.

On Wednesday Mr. Acland, K.C., for the defendants (who was not present at the close of the previous day's sitting when the verdict was given for the plaintiff), asked that judgment should be entered for the defendants, on the ground that the plaintiff had shown no injury to the reversion and that in his statement of claim he had not alleged any structural damage nor had he by his evidence proved any. The only finding of the jury, said counsel, was a finding which was not really in issue.

Mr. Morton Smith, for the plaintiff, argued that judgment should be entered for him, as the correspondence showed that there were two claims in respect of the trespass by underpinning the plaintiff's wall. There was a permanent trespass, and in such a case it was not necessary to show any damage to the reversion.

His Lordship said that the jury had found that the plaintiff had suffered damage to the extent of £20 by the trespass complained of, and that was after an invitation from him to them to consider, carefully, whether there had been any evidence of damage. The cutting away of the foundation of the plaintiff's house was undoubtedly a trespass. Judgment must be entered for the plaintiff, but he would grant a stay of execution as there was some doubt as to there having been evidence of damage.

A stay of execution was accordingly granted upon the usual terms, and the arguments as to the position of the third parties stood over.

This matter again came before his Lordship for argument as to the position of the Commissioners in relation to liability.

His Lordship now, after hearing the legal arguments on both sides, found that the Commissioners of Works were not liable, and gave judgment for them accordingly.

Appeal under the Metropolis Management and Building Acts Amendment Act, 1878.

London County Council v. Corporation of the Hall of Arts and Sciences.

October 14th. King's Bench Division. Before Justices Ridley, Scrutton and Bailhache.

This matter came before the Court on a case stated by the magistrate of the Westminster Police Court, and raised a point under Section 12 of the Metropolis Management and Building Acts Amendment Act, 1878.

Mr. Bodkin appeared for the London County Council, and Mr. Danckwerts, K.C., Mr. R. D. Muir, and Mr. A. Clark, for the Corporation of the Hall of Arts and Sciences.

Mr. Bodkin, in opening the appeal, said the question reserved in this case was whether the magistrate had got jurisdiction to hear and determine a summons in respect of the Royal Albert Hall under Section 12 of the Act. In other words, the point raised was whether the Royal Albert Hall was a building which was subject to the regulations made under that Act by the London County Council, in respect of assuring that the buildings should be

free from the risks of fire. The case came before the Court from the Westminster Police Court. The magistrate stated that on the 19th of July he dismissed the summons issued by the Council, which charged the respondents with unlawfully keeping open the Royal Albert Hall of Music without having a certificate, in writing, under the seal of the Council, granted to them in pursuance of the provisions of the Act. The magistrate in his case stated that he dismissed the summons on the ground that he had no jurisdiction to hear and determine the matters charged therein. Counsel stated that the Albert Hall was erected on land used for the Exhibition of 1851, and was completed in 1871. His contention was that, notwithstanding this and the fact that the respondents held a Royal Charter, they were not exempt from the Act, and that the magistrate had power to hear and determine the summons. Counsel also contended that the fact that the building was erected under the Commissioners did not exempt it from the Act.

Mr. Danckwerts said his two points were that Section 12 of the Act did not apply to buildings completed and opened years before 1878, and that the Royal Albert Hall, being licensed by Royal Charter for music, did not come under the Act. He therefore submitted that the decision of the magistrate was right, and that the appeal should be dismissed.

The Court held that Section 12 only applied to buildings erected or used after the passing of the Act, and affirmed the magistrate's decision as to Section 12, dismissing the appeal with costs.

The Housing and Town Planning Act.

The King on the Prosecution of W. Arlidge v. Local Government Board.

October 16th. Court of Appeal. Before Lords Justices Vaughan Williams, Buckley, and Hamilton.

This was a reserved judgment and an important decision relating to appeals to the Local Government Board, under the Housing, Town Planning, etc., Act, 1909.

Before a Divisional Court of King's Bench (Justices Ridley, Coleridge, and Bankes), the Local Government Board showed cause against a rule nisi for a writ of certiorari obtained against them on the ground that they had not determined in manner provided by law an appeal by one William Arlidge from the refusal of the Hampstead Borough Council to determine (*i.e.*, to cancel) a closing order made by the Council under section 17, sub-section 2, of the Act, prohibiting the use for human habitation of a certain dwelling house. The applicant first appealed to the Board from the closing order. That appeal was dismissed, a "public inquiry" having been first held as directed by section 39 of the Act. He also applied, under section 17, sub-section 6, to have the closing order determined. The Local Authority refused to determine the closing order, and from this refusal the appellant also appealed to the Local Government Board. A report was made by one inspector and forwarded to the Board, but its contents were not disclosed to the appellant, and ultimately the Board, after considering the matter and hearing the appellant, dismissed the appeal.

Before the Divisional Court the appellant complained (1) that he had not been heard by himself or by some advocate on his behalf, between the date of the inquiry and the date of the decision; (2) that the contents of the inspector's report were not

made known to him, and (3) that the proceedings were null and void because it nowhere appeared that the person who gave the decision was the person who considered the facts and arguments.

The Divisional Court, in discharging the rule nisi, held that the Local Government Board was not bound to hear an appellant or anyone on his behalf after receiving the report of their inspector on the inquiry and before dismissing the appeal, and, further, that a properly authenticated order of the Local Government Board made upon an appeal was evidence that the appeal was considered and decided by the Board, or by some person properly appointed to hear it for and on behalf of the Board, until the contrary was proved.

From this the applicant had appealed.

Lord Justice Vaughan Williams, in delivering judgment, said the decision of the Court must depend upon the law and the proper construction to be placed on the statutory rules. He had come to the conclusion that there was nothing in the Criminal Appeal Act, 1897, or the rules thereunder, that in any way interfered with the common law right of the appellant, and that the whole of the evidence taken into consideration by the tribunal should have been disclosed to him. In his opinion the appellant had a right to that disclosure, and a refusal could not be justified on the ground that the report of the inspector, by the practice of the Local Government Board, was confidential. The non-disclosure of the documents was inconsistent with justice. In his opinion the appeal should be allowed, and the order of February 26th, 1912, be quashed and sent back to the Local Government Board to determine the matter.

Lord Justice Buckley concurred.

Lord Justice Hamilton dissented and said, in his opinion, nothing had happened to show any substantial wrong or miscarriage of justice towards the appellant, and he thought the appeal should be dismissed.

By a majority the appeal was allowed, with costs.

Eastbourne Building Dispute : Construction of By-laws as to Party Walls.

Miller v. Field.

October 17th. King's Bench Division. Before Justices Ridley, Scrutton and Bailhache.

This appeal came before the Court on a special case stated by the Eastbourne justices at the request of Mr. John T. Miller, a builder.

Mr. Douglas Hogg, who appeared for Mr. Miller, said the charge preferred against his client was that he erected a house at 17, Kingwood Road, Eastbourne, and in doing so he contravened one of the Eastbourne Council's building by-laws. The magistrates decided that he had committed a technical offence and fined him 1s. The question for the Court was of some importance, because their lordships would be asked to construe one of the by-laws of the Eastbourne Council.

What has Mr. Miller done that it should cost him 1s.? asked Mr. Justice Ridley.

Counsel said he built two houses back to back and made the wall between the flues only 4½ in. thick. The question was whether, having regard to the by-laws, the wall should have been 9 in. thick. The Borough Surveyor said the flue should be 9 in., and he contended that, reading the by-law, they need only make the flue 4½ in.

Mr. Justice Ridley: It looks rather thin. (Laughter.) Do you think it is safe to have such a thin wall between two fires?

Counsel: Oh, the wall between the fires is 9 in. thick. It is the flues that have a wall only 4½ in. thick between them.

Mr. Hogg then read the by-law, and argued that a proviso allowed the builder to make the wall between flues 4½ in. thick and no more.

After hearing the arguments, the Court dismissed the appeal with costs.

Mr. Justice Ridley was of opinion that the position the justices had taken up would have to be affirmed in the present case. Although the by-laws mentioned where chimneys were back to back there should be 4½ in. where the smoke passed in a flue, yet in another by-law there was a statement that all party walls were to be 9 in. Under the circumstances, the Court could not interfere with the decision arrived at by the magistrates.

Justices Scrutton and Bailhache concurred.

LONDON MASTER BUILDERS' ASSOCIATION.

The ordinary meeting of the Council was held on October 16th, at Koh-i-Noor House, Kingsway, W.C., the President, Mr. Walter Lawrence, jun., being in the chair. The reports of the Committees and proceedings of the Conciliation Boards were received and adopted. Several new members were duly elected, and applications for membership received. Correspondence relating to trade matters, etc., was considered and instructions given. Since the last meeting of the Council a Working Rule Agreement has been made with the United Builders' Labourers' Union.

LECTURES AT THE CONCRETE INSTITUTE.

It is announced that a course of six educational lectures on "Reinforced Concrete, its Commercial Development, and Practical Application," will be given by Mr. H. Kempton Dyson, secretary of the Concrete Institute, at 5.30 p.m., on the following Wednesdays:—November 12th, 19th, 26th, December 3rd, 10th, and 17th, 1913. The lectures will be given in the Lecture Hall of the Concrete Institute at Denison House, 296, Vauxhall Bridge Road, Westminster. The syllabus is as follows:—1. The early history of Processes of Reinforcing Concrete. 2. The development of Reinforced Concrete in its modern aspect. 3. Present-day Systems or Methods of Reinforced Concrete Construction. 4 and 5 The Commercial Aspect. Forms of Contract. Quantities. Estimates. Safeguards. Checking Designs. Execution of Work. Testing of Materials and Finished Structures. 6. The many and various Applications of Reinforced Concrete. No fee will be charged for the course. Admission will be by ticket obtainable on application to the Secretary of the Concrete Institute.

GLASGOW INSTITUTE OF ARCHITECTS.

The quarterly general meeting of this Institute was held last week, Mr. A. N. Paterson, A.R.S.A., president, in the chair. The Secretary reported the proceedings of the Council with regard to the matters dealt with since the previous general meeting. The following were the principal items: (1) In regard to ancient monuments in Scotland, the First Commissioner of Works and the Secretary for Scotland had been memorialised, and the representations of the Institute had been given effect to; (2) correspondence with the Town Clerk in regard to proposed new

bridges, alterations at the Tron Steeple and new tramway shelters, and with the Merchants' House in support of their action in connection with the proposed demolition of the Briggate Steeple; (3) agreement as to certain matters regulating building contracts entered into between the Institute and the Glasgow and West of Scotland Building Trades Employers' Council; (4) the laying-out of Cathedral Square; and (5) with regard to the lectures, intimation was made that definite arrangements regarding the first two had now been concluded, Mr. L. March Philipps and Sir John Stirling-Maxwell, Bart., having undertaken to address the Institute on Wednesday, December 10, and Friday, January 30.

"Ironite" at the Ideal Home Exhibition.

Messrs. S. Thornely Mott and Vines, Ltd., are exhibiting "Ironite" at the Ideal Home Exhibition at Olympia. As an approved material for waterproofing cement, bricks, tiles, concrete and similar surfaces, "Ironite" has been adopted by councils, railway companies, gas, water, and electricity works all over the country, and it is being constantly specified by architects and surveyors.

Ipswich Strike Settled.

The prolonged strike of carpenters, bricklayers, and builders' labourers at Ipswich, which began at the end of June and has caused considerable trouble in the town, has at length ended, and work has been resumed. The men's wages have been increased by ½d. an hour. Sir George Askwith obtained the assent of both parties to meet him at Ipswich, and as a result a settlement was effected on this basis. About 700 workpeople were directly concerned.

Paint Manufacturers' New Showrooms.

Messrs. Thomas Parsons and Sons, the well-known varnish and colour manufacturers, have taken extensive new premises in Oxford Street which are to be opened shortly. A remarkably interesting feature of the new showrooms is a series of apartments decorated in the Pompeian, the William and Mary, the Georgian, the Adam, and the Louis Seize styles, Messrs. Parsons's various paints and enamels being employed throughout. The variety and delicacy of decorative effects obtainable by their use are clearly shown.

New Engineering Laboratories at Dundee.

The new engineering laboratories at University College, Dundee, which forms a part of the University of St. Andrews, have been built at a cost, including equipment, of £17,000, part of which has been defrayed by a grant of £10,000 from the Carnegie Trust for the Development of the Scottish Universities. The architects were Sir Rowand Anderson and Mr. Paul, who drew up the plans in 1909-10, in conjunction with Dr. Gibson, the Professor of Engineering. The building forms an L-shaped block. The main part on the north side of a quadrangle is two storeys high, and contains lecture rooms, drawing offices, library, and private rooms, with the hydraulic laboratory and two rooms which may be utilised for an architectural department that may possibly be established in the future. A central tower, some 80 ft. high, accommodates the fan and machinery for the forced ventilation of the building, and also a tank with a capacity of 10,000 gallons for the purposes of the hydraulic laboratory.

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CAXTON HOUSE, WESTMINSTER.

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On Good Manners in Architecture.

A BUILDING can signify many things; it may be an example of the proper performance of a utilitarian function, it may indicate strength and stability, and it may have other virtues, but it will never be of the first rank unless it also possess the gracious attribute of manners. Sometimes houses ignore their neighbours, or else parts of them ignore the other parts in a way that is suggestive of nothing but ill-breeding. Unfortunately the error is not an affair of practice alone, but has its roots in theory. There are two æsthetic doctrines widely held that in a certain measure mitigate against the possibility of good manners; we are told that a building ought at all costs to give full expression to its purpose, and also that its construction must be prominently displayed. These precepts are closely allied to one another and originate in a desire to attain what is called "truthfulness in art." Nobody can deny that these are plausible precepts, but they are nevertheless responsible for much that is ugly and extremely vulgar in modern architecture.

One often sees a street of workmen's dwellings whose back view exhibits an orderly progression of little protrusions each proclaiming its function to the world. A hundred bathrooms and a hundred waste-pipes—how excessively truthful! Detached houses, too, are apt to show the same undesirable candour, the same contempt for social amenities. Sanitation is good, there is no need to hide it; so speaks the truthful architect. If he is told that the kitchen offices he has designed are an appalling eye-sore, he will reply that they indicate their purpose and that one can desire nothing more than this, for expression is the highest form of artistic achievement. With a note of triumph in his voice he will ask us to look at Nature and to admit that all the animals and plants express their purpose, and it is this that gives them beauty. Yet it is possible to answer this theorist. Everybody is aware that animals and plants have a perfect beauty of its kind, but they are inferior to human beings in that they have no manners. A visit to the Zoological Gardens is a lesson in impropriety. We see a concourse of beasts that have little in common except a complete lack of self-control, and the raucous aggression of monkeys and parrots gives only a faint idea of the discora that reigns in the primæval forest. Things are little better in the plant world; among trees, shrubs and creepers the habit of mutual disregard is firmly established. Art cannot follow the model of these lower organisms, for Art is a human product, and our buildings must not only subserve our uses but acknowledge our social standards. A dog expresses his whole personality; he is absolutely naïve and frank, he is ashamed of nothing; but it is the peculiarity of human beings that for every little they reveal there is much they conceal. This reticence is necessary for intercourse and for the polite assemblage of men. It is the very foundation of society itself. Similarly, our architecture will be of a low order unless our individual

buildings cease to assert themselves unduly, and show a restraint symbolic of the recognition that they are but parts of a larger whole. Thus, full expression should never be our aim but only expression subject to certain very rigid limitations. A house may venture to assume such beauty as is consistent with the beauty of the city to which it belongs.

Bad manners can also be shown in the very structure of the building itself. In this case the breach of good taste is euphemistically called "truthfulness in construction." The appeal to Nature is even less happy in this instance than in the former. The bones of our body are not exposed to view, and the crude outlines of our sinews are modified by a covering of flesh; in the case of trees the bark covers the trunk. It is often seemly that the construction of things should be concealed. In the case of a piano, for instance, the harp which everybody knows exists inside, is hidden by a rectangular case which does deference to the other articles of furniture in the room. The best gramophone, and the one that expresses the most aristocratic temper, is enclosed in a cubical box which accords far better with its surroundings than does a vast horn that continually attracts to itself an attention of which it is not worthy. There are people who will express the truth at any cost, however injurious it may be, however uninteresting, or however subversive of decorum.

The desire to give a very prominent place to construction is not always the mark of a great constructor. When the first roof-truss was devised, it was natural that its author should wish to display his handiwork for the admiration of his fellows, and, moreover, its novelty would make it of interest to them, for here was a masterpiece of carpentry which might be considered as a credit to the society to which they belonged. In mediæval times, however, great effort was made to endow roofs with artistic form, to make patterns out of them, so that they were not merely exercises in engineering. But to lay bare a modern steel truss to our gaze, a framework which has no other merit except its mechanical stability, which has neither the beauty derived from the organic inter-relation of its parts nor the interest attaching to a notable feat of engineering skill—this is an affront for which there can be no excuse, except that afforded by the sternest necessities of economy. Famous statesmen, philosophers and men of letters may be lacking in all the graces, but they are forgiven because of the example they afford of vitality and vigour; their minor followers, though, must conform to social usages. The admirers of Dr. Johnson ought not to behave as did Dr. Johnson; Napoleon was often rude and vulgar, but it is not permitted to every captain and lieutenant to copy him in this. The most ungainly arrangement of girders will always have a certain dignity if it support a viaduct of gigantic span, but it would be better if all the obstreperous little steel strusses over our stations, swimming baths, and public halls were concealed from view, for the world is not interested in them. Let them serve to support elegant roofs, flat or of other

shape, that have been brought into proper æsthetic relation with whatever is beneath them.

The theories of design which have been examined here have this weakness in common, that they lead to a consideration of each individual building or part of a building without reference to its environment. A powerful corrective is the doctrine that good manners is a necessary characteristic of a work of architecture. It is a doctrine not unfitted to develop into a canon of criticism.

X.

Local or Open Competition?

TWELVE votes to eleven is a wofully precarious margin by which to affirm a common-sense principle, but it is a majority, and will serve. Last July the Warrington Education Committee resolved, in due form, to invite competitive designs for a new school to cost £14,000. Last week an attempt was made to rescind that resolution, in order that local architects only should be invited to compete; and it was evidently thought to be a strong point to suggest that, for a restricted competition, an assessor would be superfluous. His fees would be saved by the simple expedient of placing the adjudication in the hands of the committee. Thus the ratepayers would be relieved of a small expense, a local ratepaying architect would get the work, the committee would magnify its office, and everybody inside the Warrington ring-fence would be made thoroughly happy and contented. By a majority of one, this happy-family arrangement was thwarted, and apparently it was a shaft of satire that killed it, a Mr. Parker asking "why they did not build a wall round the town and go back to the old days when everything for the town had to be done within the town?" It is not recorded whether the minority, or any of them, were in favour of this logical extension of their principle of exclusion. There are towns round which the wall would certainly be built but for the customary tender consideration of the pockets of the ratepayers. Local competitions have no better excuse, and for the failure to appoint a properly qualified assessor there is no excuse at all, because it should be perfectly plain that the paltry fee paid to an assessor is, in the ultimate issue, an excellent investment. Why limit such a competition to local men? Is it not rather like putting a slight upon them to assume by implication that they require a protecting wall? Either the committee do or do not desire the best design they can get. If they do, they will prefer an open competition, in which local architects have an equal chance with strangers, plus whatever advantage is implied in the more intimate local knowledge. If they do not, they are careless of the interests they have undertaken to serve. But the homily loses some of its point in view of the fact that Warrington has decided upon an open competition. We hope that a local man will win it.

The Rome Scholarship in Architecture.

THE foundation of the British School at Rome was an event of first-class importance to English architecture. It meant that the whole system of education which is being gradually built up in England had received from the Government not only recognition but a fitting culmination. Though no definite promise to do so has been made, there is no doubt that the Government will endeavour to provide work for its Rome scholars on their return, in the way in which the French Government does. It will be part of the service which the School at Rome will render to the nation that, while adding point and direction to the training given to young architects, painters, and sculptors throughout the country, it will at the same time be returning to the country artists whom in their respective arts the Government can readily recognise and employ. The scholarships founded under these conditions would, apart from their money value, rank

at once as the chief prizes open to the art student. When, however, it is remembered that a Rome scholarship is of the value of £200 for three years, with free studio accommodation, and that in architecture it is given after a far more rigorous test in design and draughtsmanship than the Soane or the Tite or any other English prize—this year the competitors had to pass through three stages, the last being a design made in three weeks, *en loge*—it will be seen that our English "Prix de Rome" will soon rank with the famous Paris prize both in professional and public esteem. It is therefore a great pleasure for us to be able to announce (as we do in another column) that the prize has fallen on this first occasion of its award to Mr. H. C. Bradshaw, with whose fine drawings readers of this journal are familiar. At the same time, we should like to offer our congratulations to the Liverpool School of Architecture, where Mr. Bradshaw has received and is still receiving his architectural training. It says a great deal for the Liverpool system that it has made it possible for a young man of twenty years of age, however brilliant—and there is no doubt about Mr. Bradshaw's brilliancy—to compete successfully for such a scholarship, the age limit for which is thirty years, and against (among others) students who have been through the complete course of the Ecole des Beaux Arts and have obtained its diploma.

Pont D'Iéna, Paris.

THE interesting announcement is made that the Pont d'Iéna, which spans the Seine between the Champ de Mars and the Trocadéro Gardens, is at last to be put into a presentable condition. We are often told that "they do these things better in France," but the present instance would seem to be evidence to the contrary. To cope with the great amount of traffic over the bridge at the time of the 1900 Exhibition, it became imperative to provide additional width, and this was effected by cantilevering the footways out on either side. The expedient was of course only intended to be a temporary one; but the ironwork, rusty and unsightly, and made still less attractive by the removal of its wooden platforms, remains to this day. At last, however, after some years of discussion between the State and the Municipality, the Pont d'Iéna is to be put in a proper condition, and before the end of the year tenders will be invited for the construction of what will be practically two narrow bridges on either side of the original structure.

The Roadway in Parliament Square.

STILL once again the macadam roadway on the east side of Parliament Square, in front of the Houses of Parliament, has been remetalled. Why this continues to be done is a mystery which the ordinary man cannot hope to solve. The other three sides of the square and the surrounding thoroughfares are all laid with wood blocks, which remain in good condition. But every year the roadway on the fourth side is remade with ordinary macadam, despite the fact that this kind of surface has long since been proved to be very unsuitable to city streets and fast motor traffic. In the case of Parliament Square the macadam roadway gets into a very bad condition with every period of wet weather. The surface is cut up by the traffic, and an amount of mud is produced which ought never to be tolerated in so important a thoroughfare. If the total amount of money spent within the last ten years on remetalling this small section of roadway were ascertained, we think the public would be astonished. It is about time that a more economical and more satisfactory method of road-making were adopted, either by putting down tar macadam, wood blocks, or asphalt. This would give a lasting result, whereas the present yearly tinkering with the roadway is so much labour and money misspent.

THE PLATES.

Doorway, No. 11B, Portland Place, London.

MR. VERITY has designed many large flats for the West End of London, and among these the two buildings in Portland Place especially call for notice. The façades, executed entirely in Portland stone, embody that dignified spirit which makes many buildings of this character in Paris so successful, and the details exhibit a fresh treatment of familiar motifs, this being particularly the case in the doorways. We illustrate a typical example.

Deptford Town Hall.

Though erected some years ago, Deptford Town Hall is a building which has never been adequately illustrated. We think therefore that the two photographs reproduced in this issue will be welcomed by all readers who are able to appreciate the excellent qualities of the design. No English architects are more successful than Messrs. Lanchester and Rickards in their adaptation of sculpture to architecture. The present instance offers convincing testimony of this. The district of London in which the building is situated is one that has long been associated with shipping; hence it is appropriate to see ships, and men connected with ships, used for the enrichments of the façade. The four figures between the windows, by Mr. Henry Poole, are those of Admirals Drake, Blake, Nelson, and a contemporary officer, and they have accessories in the shape of ships corresponding to their periods. Over the central bay is a very fine piece of symbolic sculpture by Mr. Albert Hodge. We regret that the architects are unable to let us have a plan of the building for reproduction. In this case, however, the façade is one that is a study in itself, and the absence of a plan is less regrettable than it might otherwise have been.

Ashley Memorial, Romsey Abbey.

This recently erected monument to the memory of the late Mrs. Ashley is the work of Mr. Emile Fuchs, the well-known sculptor, the architectural design being by Messrs. Richardson and Gill. There is a quiet grace about it which, unfortunately, is not often found in memorials in churches. The marble work for the background was carried out by Messrs. Daymond and Son.

Neo-Grec Detail.

The doorway to the Assize Court in the Palais de Justice, Paris, is full of very fine detail which merits the closest study—such as the Medusa heads on the bronze doors, the enrichment to the architrave, and the figures on either side of the pediment. Duc, who was born in 1802 and died in 1879, was a pupil of Percier at the Ecole des Beaux-Arts. In 1825 he won the Grand Prix de Rome in architecture. Returning to Paris, he was made inspector of the works at the Place de la Bastille and the Colonne de Juillet. In 1834 he became architect in chief of this monument, the design for which (by Alavoine) he modified. In 1840 he was appointed architect of the Palais de Justice, the reconstruction of which was the chief work of his life. In 1842 he transformed the old Cour des Comptes, built by Gabriel, into the hotel of the Prefecture de Police (burned in 1871); in 1845 he began the buildings on the Rue de Barillerie; in 1850 he restored the Tour de l'Horloge. In 1861 he began the building of the Cour de Cassation; between 1857 and 1868 he built the monumental façade on the Place Dauphine; in 1872 he began the restoration of the Salle des Pas Perdus, which had been burned the previous year. His plans for the improvement of the Palais de Justice won for him a medal of the first class at the Exposition of 1855, and in 1869 the great prize of 100,000 francs given by the Emperor Napoleon III.

Shop Front, No. 237, Regent Street, London.

This shop front, for Metallurgique, Ltd., is situated at the corner of Regent Street and Princes Street, and has frontages to these thoroughfares of 21 ft. and 35 ft. respectively. It is an attempt to recognise frankly the requirements of a modern shop-front, having been designed to provide an interesting setting for the cars and to allow as clear a view as possible from the street. The front is of polished bronze, sweated into a hardwood core from the back, and was made and fixed, all to design, by Messrs. Samuel Haskins and Bros., in the short space of thirty working days. The interior is finished in "marble stuc," by the Coatstone Decoration Co., and the electric light fittings were made to the architect's design by Messrs. Escaré and Denelle, Ltd., special attention having been paid to the lighting effect, as the showroom invariably remains illuminated until midnight. It is interesting to note that both shop and showroom were designed and detailed by the architect, Mr. A. Gilbert Scott, in twelve hours.

A Correction.

In our issue for October 15th we published a plate of Pennethorne's church in Gray's Inn Road, which we titled "St. Jude's." This is incorrect. It is Holy Trinity Church, St. Jude's being some little distance further up in Gray's Inn Road.

* * * As in future the illustrations in this journal, in the majority of cases, will be from photographs of buildings, the Editors invite architects to submit photographs of their recent work. When the illustrations are given as full-page plates twenty-five copies on art paper will be sent to the authors. Architects will realise that many conditions, which may not occur to them, cover the selection of illustrations for a technical journal, and that when photographs are not used it does not necessarily imply that the work is not worthy of publication: it may happen that at the moment the illustrations do not fit in with the general scheme.

A PORTFOLIO FOR PLATES.

IN response to the many applications received from subscribers, we have prepared a portfolio of suitable size to take the plates published week by week in this Journal. Annual subscribers can obtain this portfolio free of charge by applying either personally or by letter at our offices, Caxton House, Westminster: the term "annual subscribers" being intended to mean those readers who take the "Journal" regularly, whether through a newsagent or direct from our publishing office, and whether paying weekly, quarterly, or annually. We feel sure that these portfolios will be found of very great service, as they will enable the plates to be collated and kept in a way that makes reference easy.

"AN INEXPLICABLE ANACHRONISM."

A WRITER in the "Manchester Guardian" having referred to the Gothic Revival as "one of the most inexplicable anachronisms in the history of art," is taken to task by a correspondent, who retorts upon him that the Renaissance was a "glaring but quite explicable anachronism of the sixteenth century." As so often happens in heated dispute, both gentlemen are wrong. The Gothic Revival is not inexplicable. It was correlative to the High Church movement, which was a violent reaction against everything current in the opposite camp, with, naturally enough, a special attack on such prominent objects as its buildings, which, no matter how intrinsically meritorious as architecture, were roundly condemned, or as roundly praised, on account of their associations.



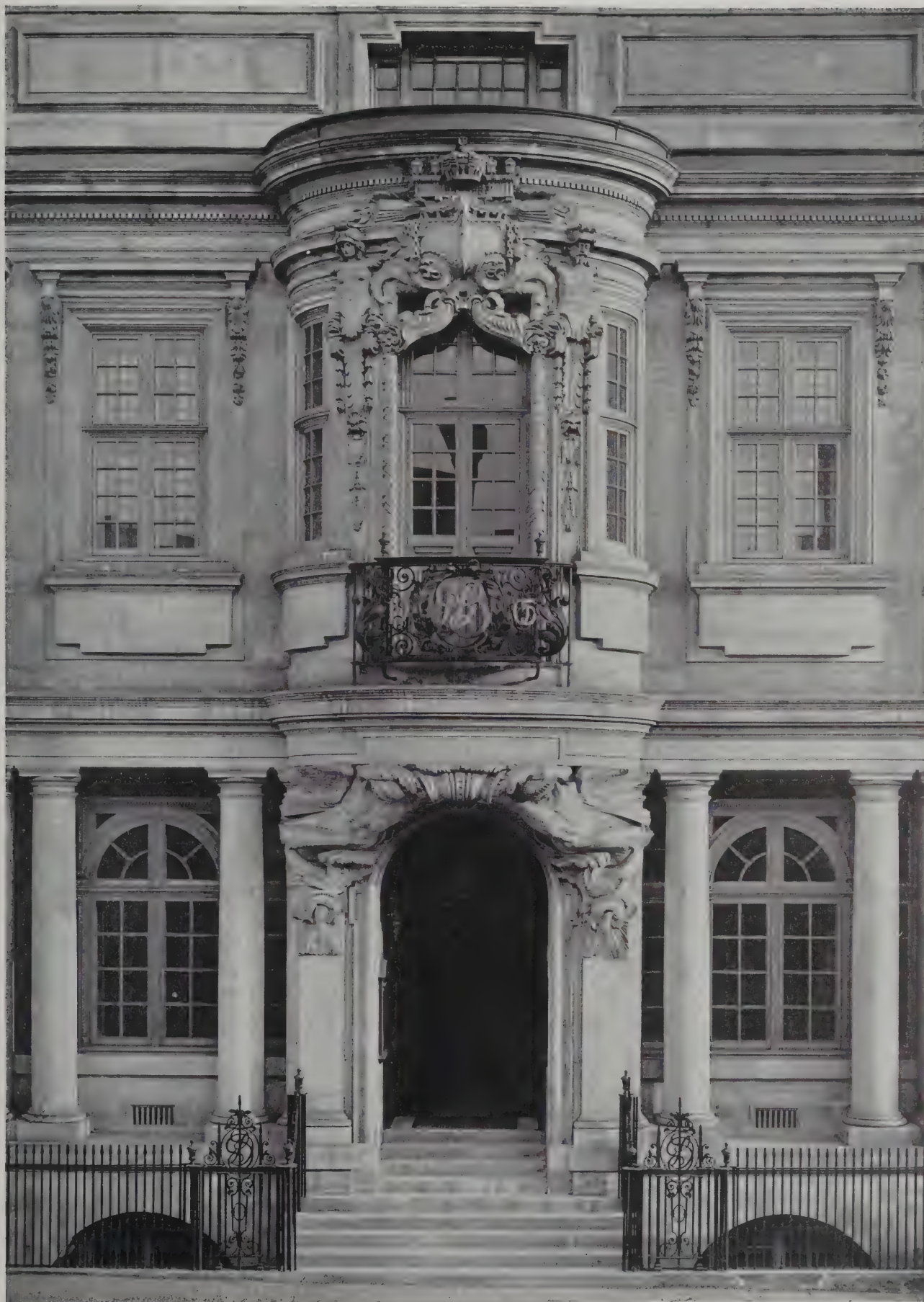
MODERN DOMESTIC ARCHITECTURE. V.—ENTRANCE TO FLATS No. 11B, PORTLAND PLACE, LONDON.

FRANK T. VERITY, F.R.I.B.A., ARCHITECT.



CURRENT ARCHITECTURE. VII.—DEPTFORD TOWN HALL.

LANCHESTER AND RICKARDS, FF.R.I.B.A., ARCHITECTS.



CURRENT ARCHITECTURE. VIII.—DEPTFORD TOWN HALL: DETAIL OF ENTRANCE.

LANCHESTER AND RICKARDS, FF.R.I.B.A., ARCHITECTS.



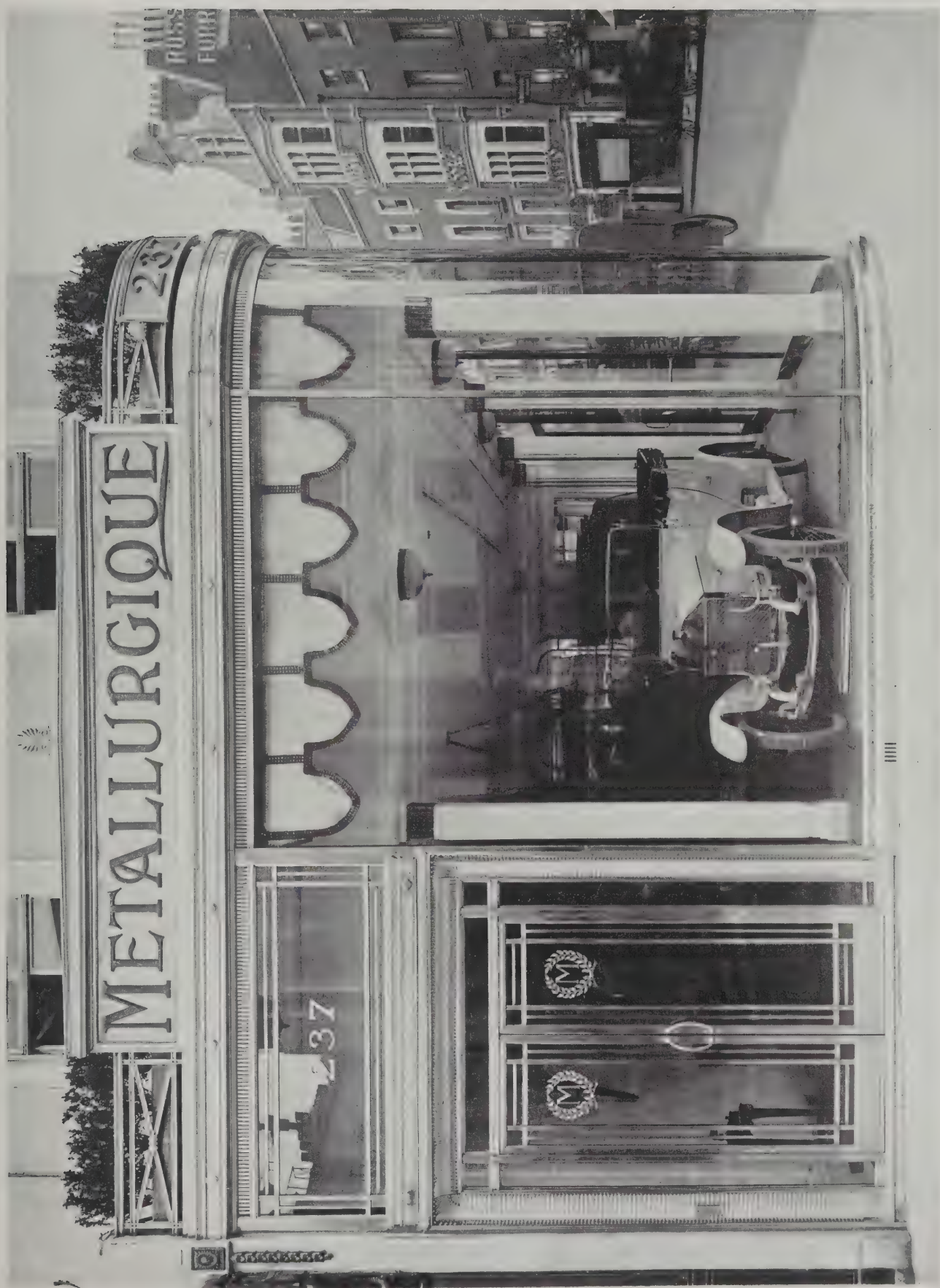
CURRENT ARCHITECTURE. IX.—THE ASHLEY MEMORIAL, ROMSEY ABBEY.

EMILE FUCHS, SCULPTOR. RICHARDSON AND GILL, A.R.I.B.A., ARCHITECTS.



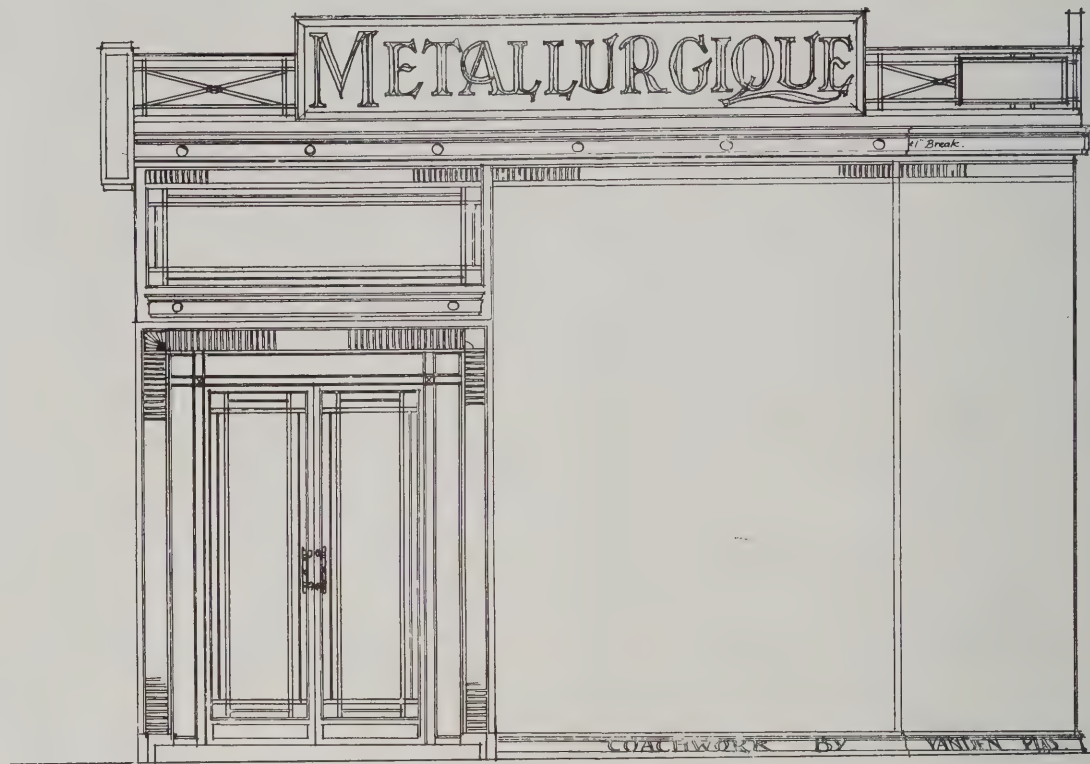
NEO-GREC DETAIL. IV.—DOORWAY TO THE ASSIZE COURT, PALAIS DE JUSTICE, PARIS.

L. DUC, ARCHITECT.



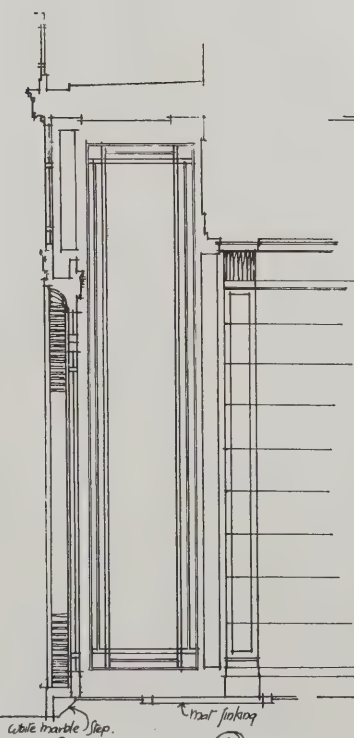
MODERN SHOP FRONTS. V.—No. 237, REGENT STREET, LONDON.

A. GILBERT SCOTT, ARCHITECT.



Regent Street Front.

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Inches Feet

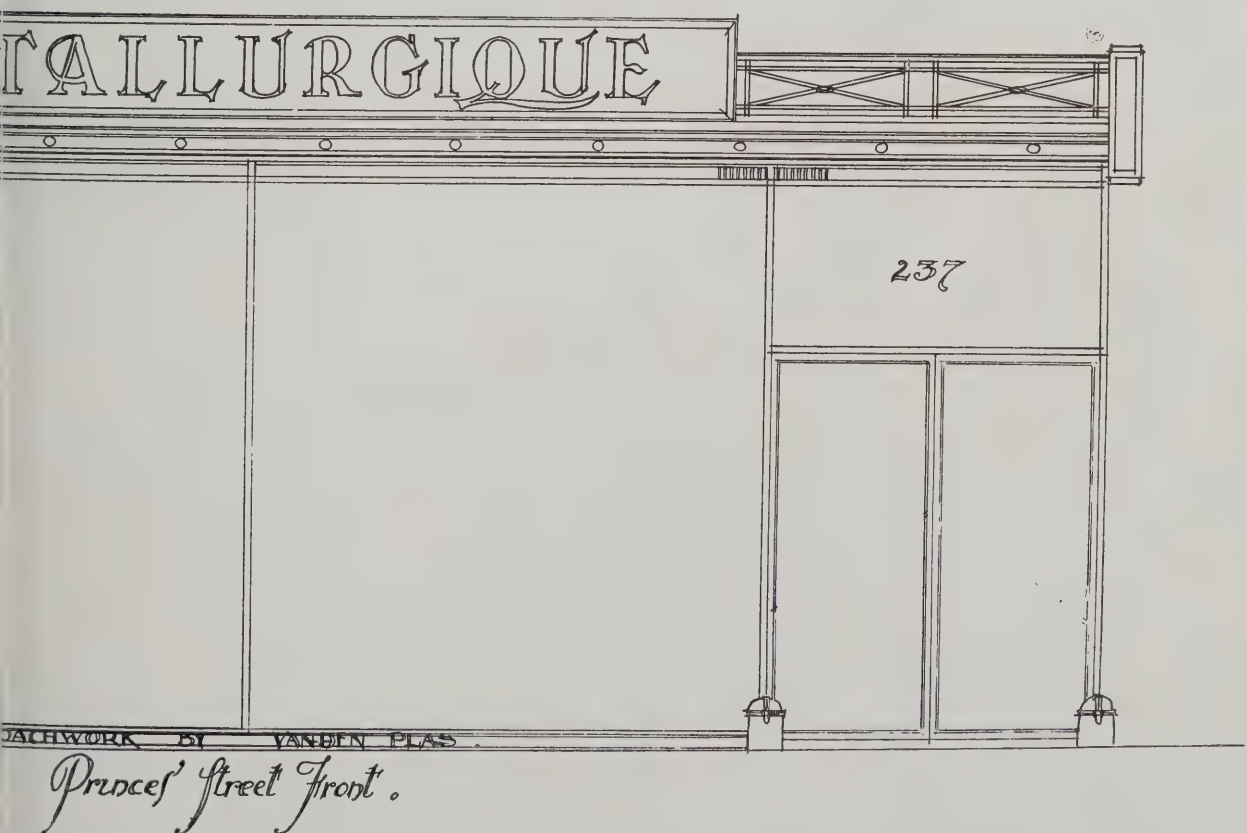
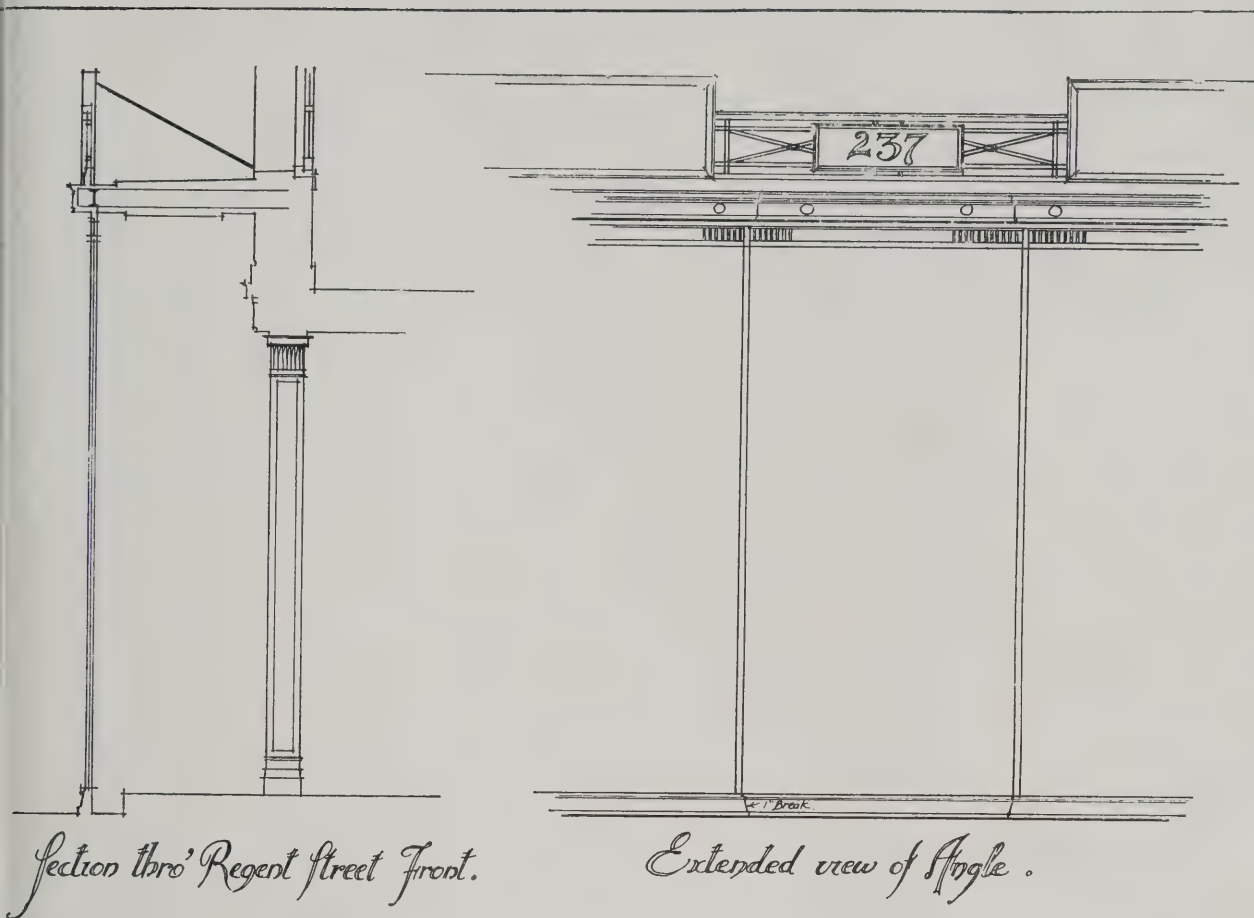


Section thro' Doors.



Inside of Doors.







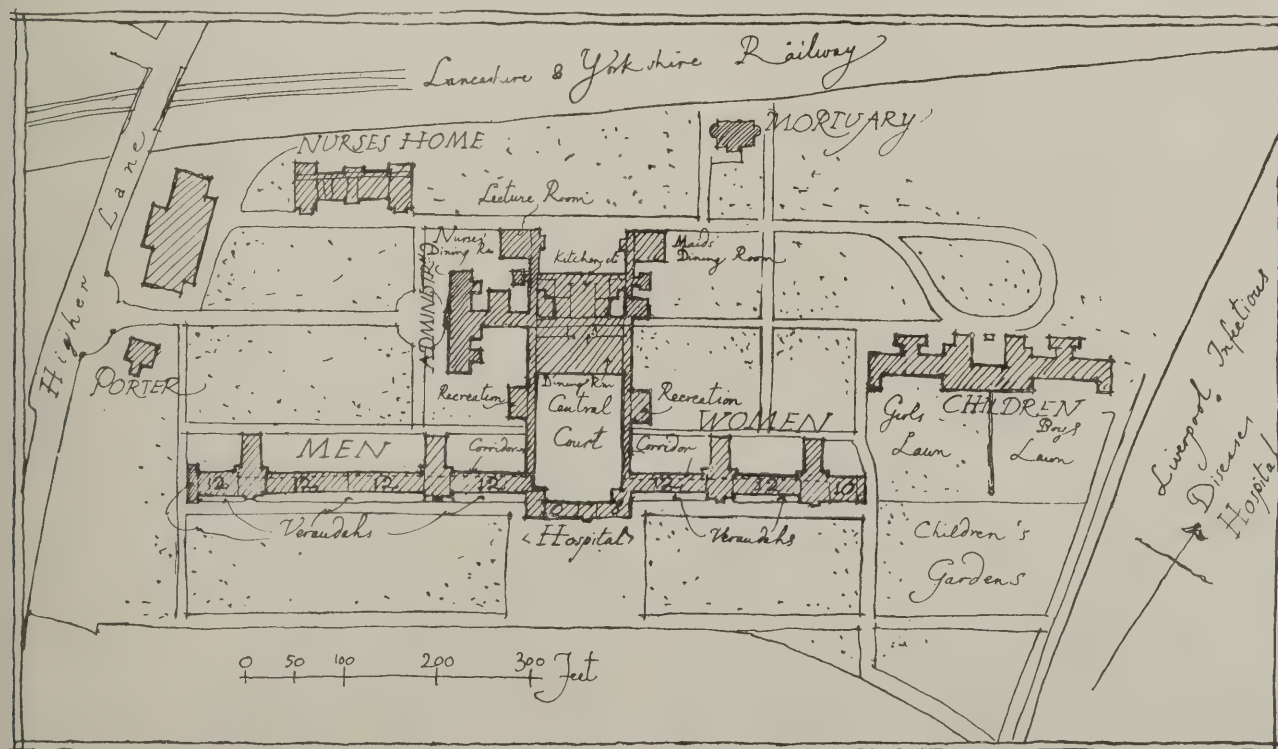
TUBERCULOSIS SANATORIUM COMPETITION, FAZAKERLEY, LIVERPOOL.

LIVERPOOL has been one of the first towns to undertake the systematic provision of sanatoria for tuberculosis: already across the Mersey a beginning has been made at Leasowe for the Children's Sanatorium for osseous cases, on the initiative of private charity, and the competition at present under review has been promoted by the Corporation to provide accommodation for about 250 adults of both sexes and children. The site selected is at Fazakerley, one of the most recently incorporated areas of the city, and as yet very thinly populated; it adjoins the existing Corporation hospital for infectious diseases, which at present does duty for consumptive cases as well. The assessor was Mr. Henry Hartley, F.R.I.B.A., acting in consultation with the Medical Officer of Health and other phthisis experts, and he has awarded the first premium to Messrs. T. R. and V. Hooper, A.A.R.I.B.A., of Redhill, the second to Messrs. Brooke and Elcock, F.R.I.B.A., of Manchester, and the third to Mr. T. W. Haigh, of Liverpool.

The first thing that struck one on looking at the plans of the thirty-one sets sent in, which were exhibited last week at the Liverpool Technical School, was the entire absence of any stereotyped arrangement of plan: these official sanatoria provide architects with an entirely new field in which to exercise and deploy their planning ingenuity, and it will probably be some time before any one type comes to be recognised (as in the case of libraries and schools) as that most acceptable to the medical profession. The actual design of the ward unit, like that of classrooms, does not vary so much, for the official medical opinion which adjudicates the three-fifths money grant appears pretty certain about what it wants. But the grouping of these units, whether arranged in one continuous wing or in separate blocks, whether connected by covered corridors or entirely isolated, whether in one or two storeys—these points, so far as one can judge from the premiated designs, appear far from settled into accepted formulæ. Equally various, too, are the arrangements of the administrative block with its central dining hall, the nurses' home

being in several cases incorporated in this, in others situated at the extreme corner of the site. Under the circumstances it becomes practically impossible to criticise these plans, and it will not be until several of these sanatoria are built and in working order that we shall have some definite ideas of their functional merits and defects.

The most notable feature of the first premiated design, of which we reproduce a sketch block plan, is the grouping of the adult ward units into a long, continuous line, balanced by the utmost amount of isolation of the other sections, such as children's wards, common dining-room and kitchens, administrative block, nurses' home, laundry, and mortuary. In this respect, this design is the exact reverse of the third premiated, in which the ward units are isolated into seven detached blocks, whereas as much concentration as possible has been aimed at in the central wing, which comprises the administration, dining-room, and nurses' home in one compact building, with a combined laundry, heating, and mortuary wing in close proximity. Such fundamental differences of planning in the premiated designs illustrate clearly the uncertainty of present opinion. The extreme isolation of these blocks in the first design appears to us, if one may venture on a criticism on general grounds, a defect. We can see no reason, for example, why the boiler and laundry block should be situated near the front entrance, entailing a maximum length of run of heating pipes, the children's wing being seven hundred feet away. Again, we have always a feeling (sentimental it is true, but sentiment in the case of persons suffering from disease is of vital importance) against the isolation of the mortuary and pathological laboratory: the building invariably proclaims itself—in fact the architect can hardly resist a natural impulse towards expressiveness of design. Far better is it to place it under the same roof with the boiler house and laundry, as the other two premiated designs do—it is equally efficient and no longer patently prominent. The admirable features of the plan appear to be the comparatively short length of communicating corridors necessary;



COMPETITION FOR SANATORIUM AT FAZAKERLEY, LIVERPOOL. FIRST-PREMIATED DESIGN: SKETCH PLAN.

T. R. AND V. HOOPER, A.A.R.I.B.A., ARCHITECTS.

the unobstructed approach of the dining-room, each sex passing its recreation room on the way; the large central court, described as suitable for entertainments, would be an attractive feature, and the large dining-room windows opening on to it would make that room particularly sunny and cheerful. There is again more homeliness and humanity in the planning of the children's block, which is a one-storey bungalow with girls' and boys' court facing on to a terrace and lawns, with suggestion for children's gardens beyond. The main wards, it will be seen, are in a straight line facing S.W., with a projection in the centre containing thirty-six beds which is termed a hospital for bed-ridden cases; there is a continuous corridor at the back and a verandah along the front; the wards are in two storeys, and all, except the end block of either sex, for single rows of beds.

The second design shows ten exactly similar blocks of wards arranged exactly symmetrically on either side of the three separate central blocks, which consist of (1) administration, (2) dining-room, kitchen, and recreation, (3) laundry, boiler, and mortuary. The nurses' home is isolated as far as possible in the western corner of the site. The chief feature of this scheme, which is remarkably symmetrical, is that all the wards are one storey, resting on a high ventilated basement, and lit by a sort of "weaving shed" roof over the verandahs.

The third design, which bears considerable resemblance to the second, makes, however, the ward blocks of two storeys like the first. But his central wings, allowing for the fact that this one has pushed back the administration so as to combine with the dining, are almost identical with the second on ground plan; while the nurses' home, instead of being in a separate building, is placed on the first floor over the administration quarters. This third plan appears to us by far the most economical of the three.

CORRESPONDENCE.

The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.

Correspondents are asked to be brief, and to write on one side only of the paper

Collective Bargaining.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—It cannot be said that those engaged either in the art or craft of building are expert as wirepullers or clever at lobbying. In the drear times when a bare double-elephant drawing board is horribly suggestive to an architect of the possible necessity of the perambulation of streets between two of the same, to advertise somebody's pills in these desperate times, some movement may be made, and idle energies thrown into a cry of registration, copyright, or what not. Let but the opportunity offer, though, to place one brick on the top of another, and all is forgotten by the Radical of yesterday. Decent burial in a committee, and no more is heard of the measure.

This should not be so. Our title can hardly be escaped at the moment, and is scarcely parted, in its constant repetition in the journals, by bare half paragraphs. The democracy marches forward in somewhat sordid fashion, like all armies, on its belly, and collectively bargains for the most it can obtain from its collected fellows, the State. And it gets, in just as unpleasing a way, the very least possible sop that will keep it crawling. Out of this welter we create our art; it cannot be escaped.

It is not suggested that the architects and builders should push in for an extra halfpenny an hour, or so much more per cent., but the principle might be adapted to this end, that we should collectively bargain to be left alone for a little. Peace would be worth pence to the men, pounds to the masters, and an added

percentage to the architects. But it is too much to expect.

The catchword to-day is Peasants as against Pheasants—cottages for the former and death by taxation to the latter. Both political parties have determined that all is not well with the land, its tenure, and the incidence of its taxation. The cure will probably be found in an increase of the latter.

It must not for one moment be thought that complaint is made against any particular party—it is levelled rather against all parties and politicians who attempt to cure by the poultice of legislation, rather than cutting out the root of the disease.

Slums have been caused by dear land, undue costs and charges, and a general lack of humanity in dealing with one's fellow men. They will disappear when the causes do, and not before. The Town Planning Act, if anything, adds to the costs of dealing in land.

At the moment the transfer of land is a scandal. These are words used not long since in the House of Lords by the Lords Chancellor past and present. The costs in England are much in excess of those of any other civilised country.

Our credit system seems chiefly designed for the benefit of the Jew money-lender; the fact that usury is so horribly prevalent is the worst indictment that the present system could have, and the necessity of regulation by Act of Parliament of the usurer shows how difficult the legitimate channels of credit must be. Our banks have degenerated into underwriting concerns for the benefit of shareholders, and are of little real use to the business community. All this stringency has evolved the sharking type of jerry-speculating builder and the anæmic house, bled white by excessive costs.

It is all rather like curing a poor man who has stomach-ache, and needs but a purge, by first an operation for appendicitis, with a voyage round the world afterwards to get over it. It would be extremely nice for the patient could he but afford it. Building is in much the same case—it cannot afford the cure. It is governed by strictly economical principles; if charge be added to charge the cost will rise so considerably that the client will not build. Or, alternatively, the cost must be taken out of the building itself, with disastrous results. Ordinary common building is strictly a matter of £ s. d. It is as unfair to the individual client as it is bad for the community to run up the cost of building and inflate it beyond its real value. Time rights this, and less work is done.

This has been the case during the last few years of the so-called trade boom; little real benefit has been felt in the building trade, and the prosperity of the Trade Returns has not been reflected in the contract list. If this has been the case in the boom, what of the lean years?

Hence the necessity for the purge. If the politicians are to attack the land, if the cottage is to be standardised and built wholesale north, south, east, and west, with little regard for locality, material, or aspect, and if, in addition, there is to be endless unsettling talk of the iniquity of land owning in general—if this is to be the case, the future of building is gloomy.

For collective bargaining there is necessity that we be left alone. If this is not possible the politicians might be persuaded to turn their energies to

1. Simplification of transfer of land, so that the people be encouraged to deal in it and be familiarised in so doing.

2. A general reduction of costs and charges, stamp fees, duties, etc. The community should be put in the way of making money before they are taxed.

3. A drastic improvement of our credit system whereby money can be borrowed readily on approved securities.

4. Less talk about the land.

This would help and No. 4 would be better than nothing.

C. H. B. Q.

HERE AND THERE.

MR. MACARTNEY, I notice, has been making a little calculation about the Royal Commission on Historical Monuments. This Commission began its labours in 1908, and the recently published volume on North Buckinghamshire serves to remind us that during these past five years the Commission has completed the survey of only two counties. It will be remembered that Mark Twain in his "Innocents Abroad" made an ingenious estimate of the speed of travelling by glacier in Switzerland. He was informed that glaciers were always moving, and so he sat down in the middle of one, leaving his baggage at the edge. Not appearing to move very fast, he gave solemn thought to Professor Tyndall's investigations, and found that according to these he himself, sitting in the middle of the glacier, would arrive in the valley in about 500 years' time, but he would be too soon for his baggage, because that being on the slower-travelling edge would not arrive till two or three centuries later. Mr. Macartney seems to have worked out a similar sum in regard to the Ancient Monuments Commission, for, calculating that it has taken five years to deal with two counties, he arrives at the conclusion that the Commission will not finish its work until the year 2080, by which time most of the historical monuments will have ceased to exist. It is to be hoped that Lord Burghclere will study this little problem very carefully.

* * * *

I am rather late in the day in referring to it, but I cannot omit some reference to so important an event as the passing of the cottage which was a thatched one, and whose outside was old and mean; in brief, "Little Jim's" cottage, which stands in a narrow lane between Polesworth and the Warwickshire mining village of Dordon. I saw a picture of it the other day, and it seemed to be quite a harmless little house, though the local sanitary authority has condemned it as unfit for habitation. I can hardly enthuse, however, over the appeal which has been made to raise the sum of £50 for its preservation. Edward Farmer's verses, of course, have a sentimental ring about them that has made "Little Jim" as pathetic as the prose that circles around "Tiny Tim," but if we are going to be asked to save from destruction every place where a poet or a novelist has gone for local colour, it will be necessary to increase the National Debt; besides, as a rule, whenever we endeavour to translate into actual fact some person or place which an author has created out of his own imagination, the result is a complete disappointment. That is why, for instance, so many people preferred to leave Sherlock Holmes in Dr. Conan Doyle's descriptive pages rather than present him in flesh and blood on the stage.

* * * *

Who has not contorted himself in gazing up at the artist's work on some large ceiling, and who has not then preferred that he might look at the work on a vertical plane? To me, such decorations on ceilings have always appeared to be misplaced. The only position in which you could expect to study them comfortably would be lying down flat in bed, which might perhaps commend the ceiling artist for hospitals. One might hasten to say that the same criticism could be applied equally well to plasterwork or any other form of decoration applied to ceilings, but in cases such as these we only esteem the work for its general effect, whereas the artist may well claim that every part of his work is worthy of our closest attention. With a very high room or hall we have a fair chance of studying the painting as a picture, but more often than not the apartment compels us either to look at the work slantwise, rather casually, or closely to study it at the risk of cricking our necks. Moreover the design, if it

includes figure subjects, is bound to be upside down from one side, and then loses its meaning; so that I should be sorry to see a recrudescence of the methods which were so popular in the eighteenth century. Let us have painters at work decorating our rooms by all means, but let them confine their work to the walls, leaving the ceiling for enrichments which do not demand a close scrutiny to assimilate their individual merits.

* * * *

Possibly following the example of a correspondent who sent me a cutting last week about some Cardiff villas which have been erected in most of the known styles of architecture, another reader sends me a cutting about a certain firm who advertise themselves in a provincial newspaper as "Auctioneers and Valuers, Surveyors and Land Agents, House and Estate Agents, Architects and Sanitary Engineers, Rent Receivers, Fire Loss Assessors." This, of course, is merely the architectural complement of the familiar inscription "Builder and Undertaker," but it serves as just one further example of the need for registration. Possibly, however, in this case, by including the calling of architect in their generous list of qualifications, the firm in question hope to get taken up in the grand movement that is to sweep Registration up to the Statute Book, in which case they are taking time by the forelock.

* * * *

Architects who are commissioned to design buildings for exalted personages keep their personal impressions to the limited circle of a few friends, and it is only in later years that the memoirs appear, letting the public into those piquant details which make such good reading. The relations between Lord Palmerston and Sir Gilbert Scott over the design for the Home Office building offer one instance out of many that might be given. But sometimes, owing to the course of events, the private act becomes a public concern, and then it is everybody's privilege to form an estimate of Majesty's doings. This is the case with the proposed new German Embassy for Washington. It appears that a competition among German architects was held for the design of this building, which is estimated to cost £200,000, and no fewer than 272 designs were submitted. A competent jury, including the Foreign Secretary and the leading architects of the Empire, assessed these, and selected the design of Bruno Moehring, who, if I am not mistaken, has done some excellent work in civic lay-out in Berlin. When the design came before the German Emperor, however, His Majesty wholly disagreed with the award, said the selected design was "not suited to Washington," and promptly set aside the whole of the competition drawings in favour of the Court architect, von Ihne, who was instructed to prepare the design. The unfairness of this proceeding is so obvious that I need not comment on it, except to remark that it would have saved a lot of trouble if the German Emperor had announced himself as sole assessor from the commencement. But it may be that His Majesty is, once more, doing a good work for his country. German architects of the modern school are dallying with a strange mixture of Classic and Art Nouveau, and if the selected design were of this character it would be put out of countenance by the stately work which American architects are achieving; whereas, if I mistake not, von Ihne may be counted on for a non-committal design; and in a foreign country it is imperative to look sober and respectable, even at the risk of being deadly dull. A German innovator amidst the architecture of Washington would only invite ridicule, and we may be sure that is the last thing the Kaiser wants.

UBIQUE.

CONSTRUCTIONAL DETAILS OF A NEW CITY OFFICE BUILDING.

SPECIALLY CONTRIBUTED BY OSCAR FABER, B.Sc.

THE large block of offices shown in the accompanying illustrations was completed this year for the London Offices Co. It will be seen from the drawings that the building measures 144 ft. by 106 ft. on plan, and comprises nine storeys, including the basement, but excluding the well room, which is in the sub-basement. It has a frontage of 66 ft. to Crutched Friars, one of 37 ft. 2 in. to New London Street, and one of 10 ft. 6 in. to Railway Place.

The speed with which the building was constructed is graphically illustrated in Figures 1 and 2, taken from the same position, the former on September 9th, 1912, showing the derrick crane in position, and the latter on March 25th, 1913, showing the finished structure.

Figure 2 only shows that portion of the

structure which is above the third floor, the elevation on Crutched Friars up to third being illustrated in Figure 3. All the elevations were carried out in Portland stone.

The building was constructed as a steel frame building under the L.C.C. General Powers Act of 1909. As a good deal of discussion has taken place as to the value of this Act, it may be noted here that neither the time of completion nor the cost of the structure was increased by the form of construction adopted, and the saving in floor space by the adoption of thin walls was very marked.

The writer welcomes this opportunity of acknowledging the courtesy which he and the builders received from Mr. John Todd, district surveyor of the City of London (East), in the checking of the calculations

submitted to him under the 1909 Act, which enabled the engineers to take advantage of the new Act without sacrificing undue time in getting the calculations passed.

Foundations in this portion of the City present some difficulty, and some of the stanchion bases had to be carried down very much below the others, the foundation for each base having to be considered on its merits while the digging was in process. It may be mentioned that of the forty-seven stanchions the minimum distance from basement floor to the bottom of foundations is 5 ft. 6 in. while the maximum is as much as 14 ft. 6 in.

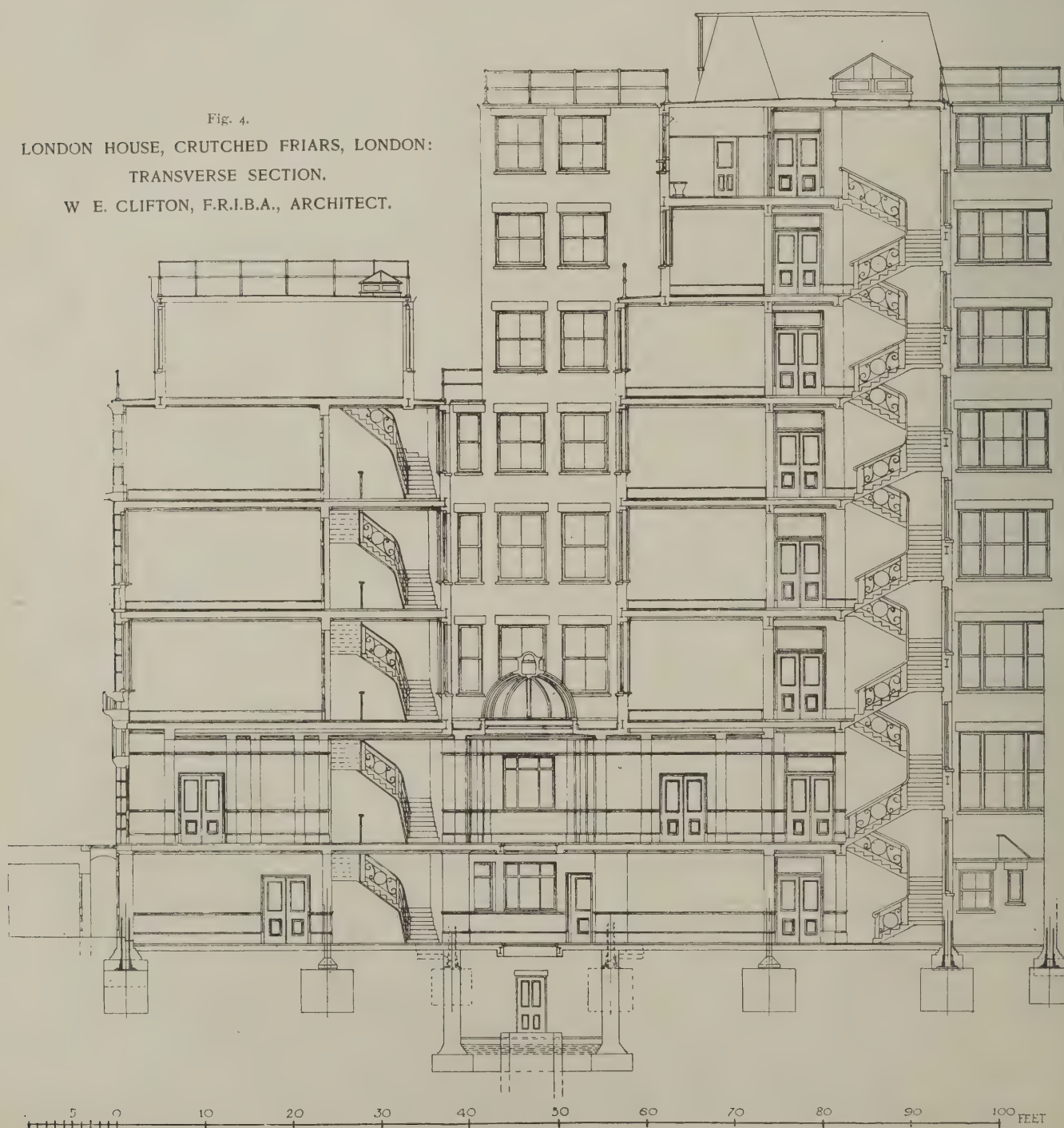
The floors consist of a combination of reinforced concrete and hollow tiles, which appear to have considerable advantages for this kind of work, and which have been

Fig. 4.

LONDON HOUSE, CRUTCHED FRIARS, LONDON:

TRANSVERSE SECTION.

W. E. CLIFTON, F.R.I.B.A., ARCHITECT.



5 0 10 20 30 40 50 60 70 80 90 100 FEET

patented by the writer. The tiles, which are made of a porous material, are provided with a rib on their upper surface, which passes through the covering layer of concrete and enables the floor battens to be nailed direct, thus obviating the plugging which is usually necessary with a hard reinforced concrete floor. The floors were 6 in. in thickness throughout, the largest panel measuring 19 ft. 6 in. by 16 ft.

Abundance of light is an essential in this class of building, and the architect kept this point in view in every detail.

The building has no fireplaces, which means a considerable saving in space, simplicity in construction, and saving in cost of cleaning. There is a very complete heating installation at the service of the tenants. The contractors for the heating were Messrs. Norris and Co., 11, St. Andrew's Hill, E.C.

Figures 5, 6, and 7 show typical steel details. It will be noted that the columns mostly consist of 8 ft. by 6 in. joists plated with 9-in. or 10-in. plates, so as to make the overall sizes of the steel stanchions 10 in. square in the lower storeys, 9 in. square higher up, and 8 in. by 6 in. for the upper storeys, which are reasonable dimensions for a building of this height.

Great importance was attached to the machining to the ends of the stanchions and of the angle stiffeners in brackets, and the workmanship was of a high quality throughout.

The stanchions were designed for the bending moments due to unequal loading of the floors, and the stiffness of the joints between the beams and the columns was designed with a view to giving the building sufficient rigidity to withstand the stresses due to wind pressure, which is considerable in a building which projects so far above the surrounding buildings.

The architect for the work was Mr. W. E. Clifton, F.R.I.B.A. The builders were Messrs. George Trollope and Sons and Colls and Sons, Ltd., while the writer was engineer responsible for the design of the steelwork and the reinforced concrete.

NEW LANDING STAGE BRIDGE AT LIVERPOOL.

A notable piece of engineering work has been completed at the Liverpool landing stage by the opening of a new bridge for the use of passengers proceeding from the pierhead to the floating landing stage. The bridge, which weighs about 200 tons and cost £8,000, was constructed by Messrs. Francis Morton and Co., of Garston, Liverpool. It consists of two main steel girders 160 ft. long by 25 ft. wide inside, and 13 ft. 10½ in. high from the floor to the underside of the girders, with flooring of 16 in. by 6 in. joists, spanning the girders. The bridge was built and fitted up complete at the builders' works, and was afterwards taken to pieces and conveyed to the site, where it was re-erected on the quay and successfully launched. The launching weight was about 120 tons. The bridge was run on rails from the pierhead more than half-way over the water to the landing stage, and a pontoon, placed under it, was towed over until it overhung the landing stage. At high water the stage rose to meet the bridge, water was pumped into the pontoons, which sank a little, and, as the tide fell, the bridge settled in position. The whole operation was worked out previously with a model at the builders' works, and the bridge was dropped within a fraction of an inch upon the position designed for it.



Fig. 1.
VIEW OF SITE, SEPTEMBER 9th,
1912.

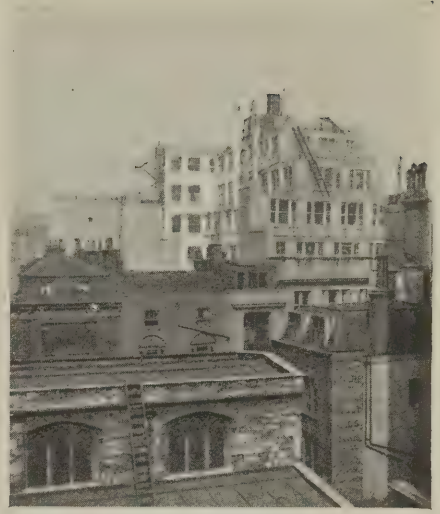
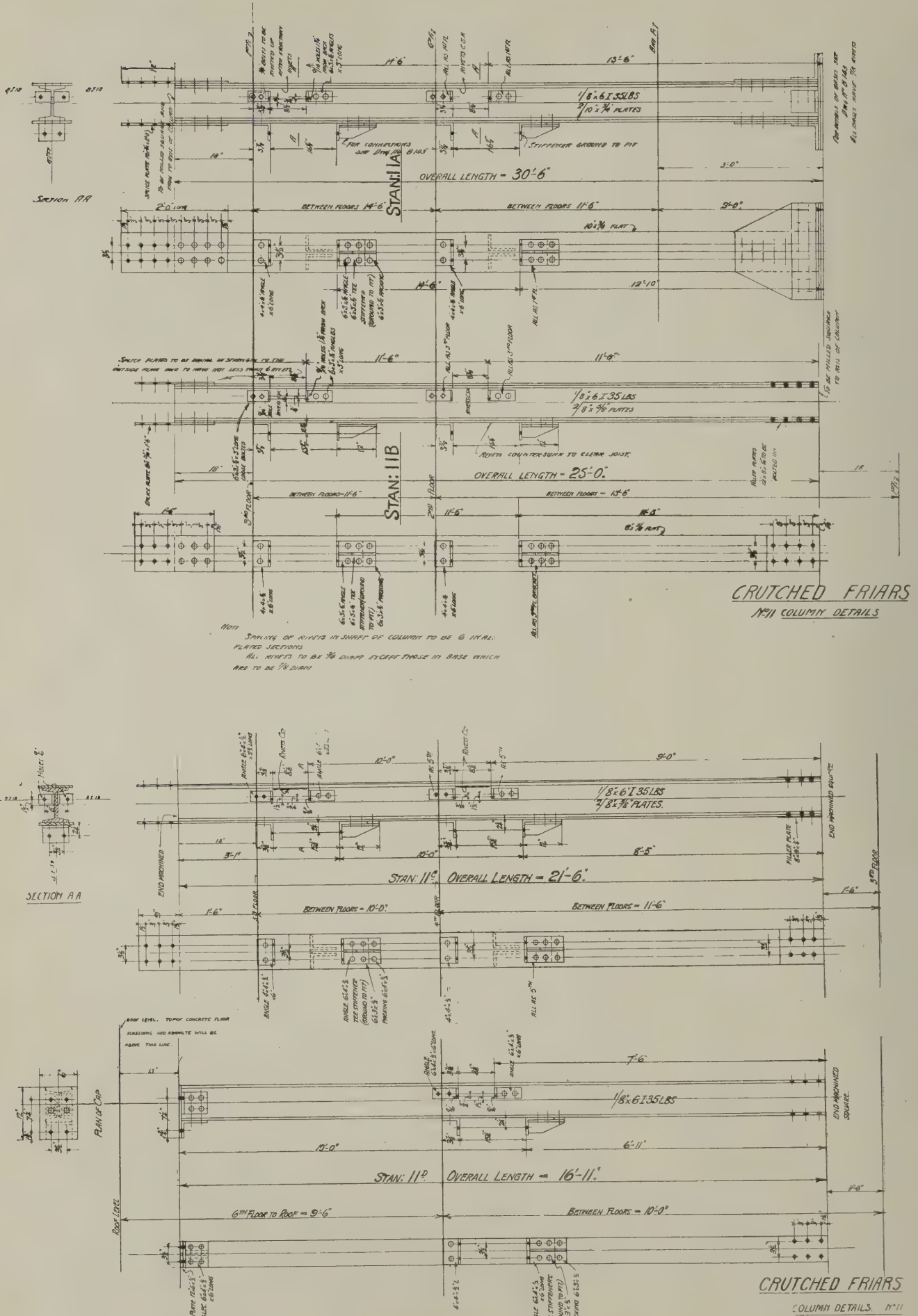


Fig. 2.
VIEW OF COMPLETED BUILDING,
MARCH 25th, 1913.



Fig. 3.
LONDON HOUSE, CRUTCHED FRIARS, LONDON.
W. E. CLIFTON, F.R.I.B.A., ARCHITECT.



TIER A

TIER B

TIER C

TIER D

Fig. 6.

Fig. 5.

LONDON HOUSE, CRUTCHED FRIARS, LONDON: TYPICAL STEEL DETAILS.
(See page 408.)

ENQUIRIES ANSWERED.

Book-keeping for Architects.

CINQ VILLES writes: "What system of bookkeeping would be suitable for an architect just beginning practice? What books are necessary and what method of filing letters would you recommend?"

—Querist should obtain and read the excellent little book on "Office Management for Architects," by W. Kaye Parry, F.R.I.B.A., published by Messrs. E. and F. Spon, in 1901. It is probable that the system outlined therein will exceed anything required by the architect just commencing practice, but the book is full of useful hints and is quite up-to-date, except that it is now preferable to copy outgoing letters on loose sheets for filing under the several jobs rather than to continue the use of the old-fashioned letter-book.

Querist should avoid the adoption of a system which is out of proportion to the business it regulates. He will probably find that his present needs will be served by an office diary (in which all times on each drawing or other instrument of practice, and fairly full reports of what takes place at each interview or visit, are booked), a pocket appointment and memo. diary, a plan book (in which numbered records of all copies sent out are preserved), and a cash book for income and outgoings, together with the ordinary files for letters and documents classified under jobs. If a general practice is made of making all payments by cheque and paying all moneys received into the bank, even the cash book may be dispensed with.

G.

Weight of Ram for Pile-driving.

C. D. writes: "'Molesworth' (page 125) gives the rule for the weight of rams as follows: $W = \text{weight of ram in lbs.}, w = \text{weight of pile in lbs.}, H = \text{fall in feet}, A = \text{sectional area of pile in sq. in.}, P = \text{length of pile in feet}.$

$$W = w \left(\frac{w}{5A P} - 1 \right)$$

Assuming a pile 40 ft. long, height of fall 6 ft., weight of timber 70 lb. to the foot, pile 12 in. by 12 in., this works out to a minus quantity."

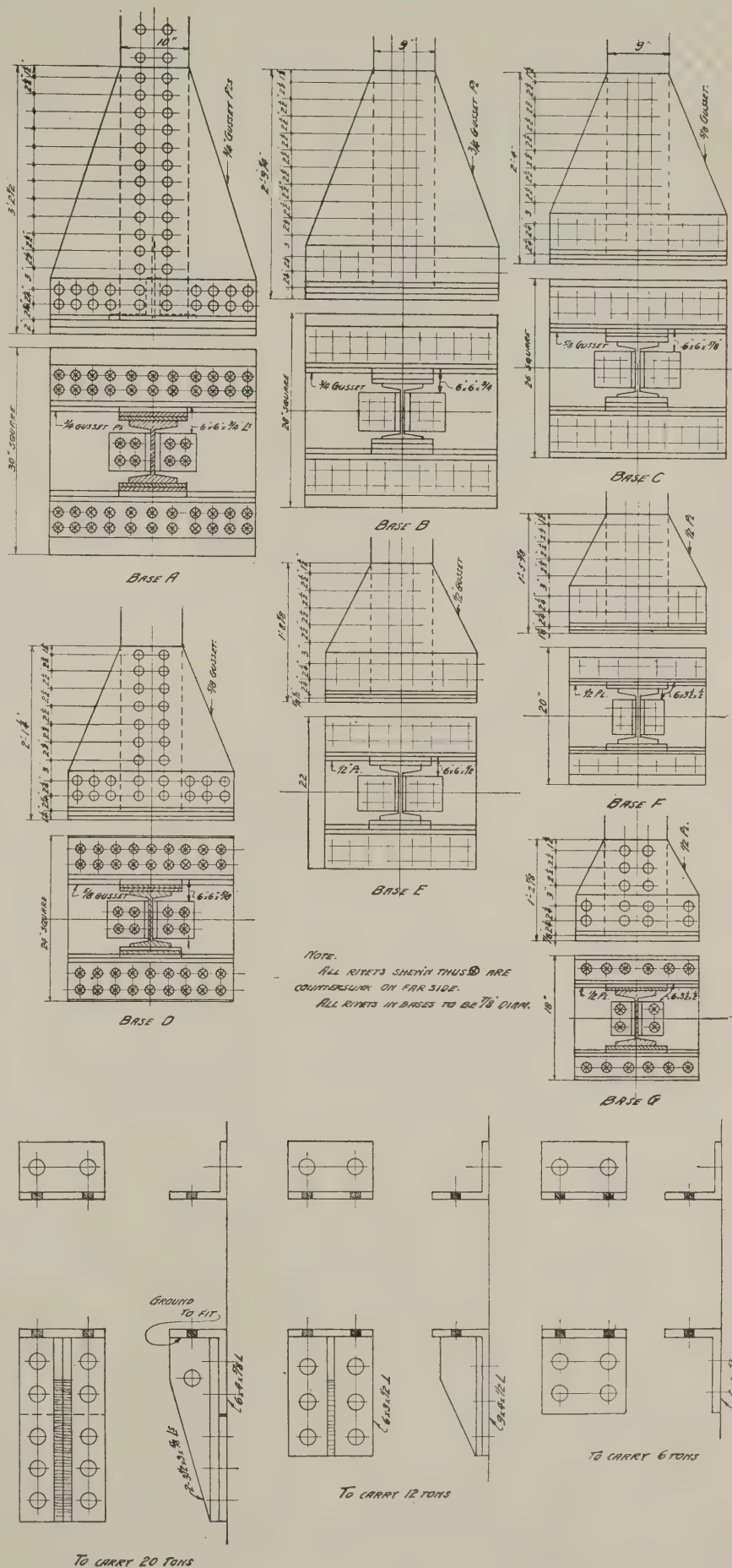
—The formula given is not reliable. Hurst's "Tredgold," page 292, says: "Piles from 10 to 14 in. diameter require to be driven with a ram of from 1,000 to 1,700 lb. weight. Sheet piling require a ram from 500 to 900 lb. weight." Dobson, in "Foundations," gives a table for weight of ram desirable for various sizes of piles, which is given very nearly by the formula: Weight of ram in cwt. = $\frac{3}{5}$ (diam. pile in inches - 5). A simple and suitable rule for most cases is to make the weight of the ram equal to $1\frac{1}{2}$ times the weight of the pile. The average practice of over fifty American engineers is to use a ram of 2,500 to 3,000 lb., and to vary the fall according to circumstances.

HENRY ADAMS.

Local Authorities and Lighting of Rooms.

H. L. K. writes: "Have a borough and urban district council power under the Public Health Act, 1875, to enforce the owner of a dwelling-house to provide more light to a living room when they consider there is an insufficient light (which they call a nuisance)?"

—I cannot at the moment refer you to a decided case having reference to the provision of light only, but there is no doubt that ever since the abolition of the wickedly insanitary "window tax" in the early "fifties" the provision of a suffi-



ciency of light in a dwelling-room has been regarded as of first-class importance, and, of course, bound up with this question is the cognate one of air and ventilation. I am of opinion that an insufficiency of light may be a "nuisance, or injurious to health," within the meaning of Section 91 of the Public Health Act, 1875; but, naturally, this is a question of fact in each particular case, and it must be tried upon its merits, the onus of proof lying on the sanitary authority. A very usual "rule of thumb" calculation is that the area of the window or windows in a room should be equal to a tenth of the area of the floor. It may be worthy of mention here that the Housing and Town Planning Act, 1909, Section 17, specially mentions "light" (inter alia) as a necessity in certain rooms used for sleeping purposes.

F. S. I.

Powers of U.D.C. and Medical Officer of Health.

H. H. B. writes: "(1) Can an urban district council pass a resolution which makes compulsory the use of a particular make of article where, under the by-laws, the word 'suitable' is used in connection with sewer and drain pipes and other sanitary fittings? If so, kindly name Act of Parliament. (2) Has a medical officer of health power to condemn any sanitary fittings in connection with a new house before a nuisance arises? (3) Is there any legal definition of the word 'conservatory,' and what it shall be used for?"

—(1) An urban district council possesses no statutory power to compel the use of any particular type of article or appliance. It is, however, open to them to express their approval of such an appliance, and I should advise compliance with their wishes if there is nothing to be gained in efficiency by using another type of apparatus.

(2) I am not aware of any such power, and believe that only when a nuisance actually arises can an owner be compelled to remedy a defect. This is subject, of course, to the powers of the council with regard to plans and with regard to the construction of a new building.

(3) Not to my knowledge—it must not, of course, be used for human habitation (i.e., bedroom, etc.).

F. S. I.

Government Appointments.

H. G. W. writes: "Please say (1) how I could obtain an appointment with a Government survey party going abroad. (2) Can you recommend any books on provincial building law?"

—(1) Apply to the Civil Service Commissioners, Burlington Gardens, W.

(2) We know of no book on the subject of provincial building law.

Worms in Woodwork.

With reference to the reply on this subject which appeared in our issue of September 3rd, a correspondent asks for further information as to the treatment of some old oak carvings which have become affected.

—The treatment with corrosive sublimate described in the former reply has the disadvantage that the metal in solution darkens the colour of the wood. In 1855 Mr. Henry Crace restored the wood carvings in the Mercers' Hall, London, by the following method: The carvings were first washed and a number of holes were bored in the back by a gimlet, and also into every projecting mass of fruit and leaves on the face. The whole was then placed in a long trough, 15 in. deep, and covered with a solution prepared with 16 gallons of linseed oil, 2 lb. of litharge finely

ground, 1 lb. of camphor, and 2 lb. of red lead boiled together for six hours, well stirred the whole time; 6 lb. of bees' wax dissolved in a gallon of spirits of turpentine was added to the first mixture and well stirred together while warm. In this solution the carving remained for twenty-four hours. When taken out, the face was kept downwards, that the oil in the holes might soak down to the face of the carving. The dust was allowed to remain in the burrows to form a substance for the future support of the wood, and as it became saturated with the oil it increased in bulk and rendered the carving perfectly solid.

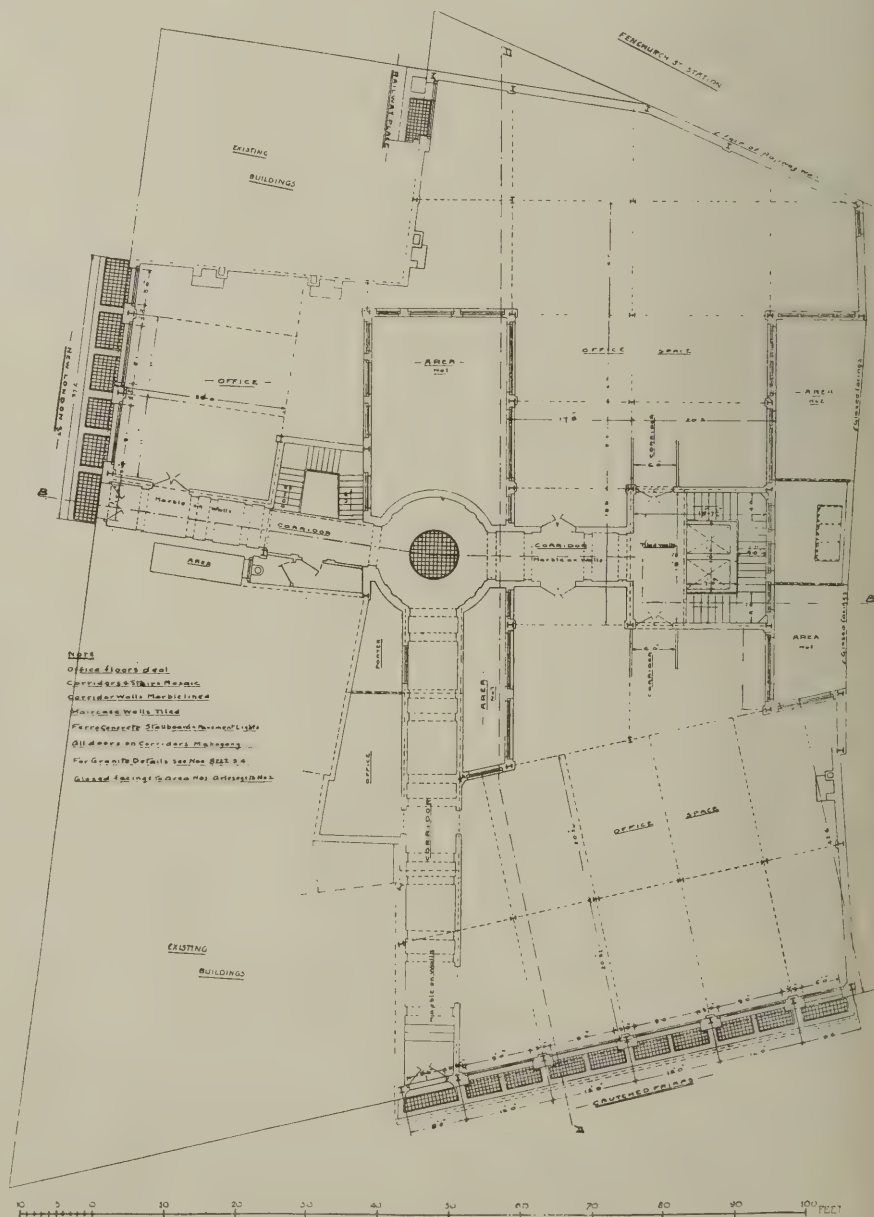
If, for any reason, the carving cannot be placed bodily in the solution, and injection is necessary, washing the surface, first with ammonia and secondly with weak muriatic or hydrochloric acid solution will reduce the darkening effect of the corrosive sublimate. The proportions of vegetable gum and gelatine to be afterwards used for stopping up the holes must depend on the extent to which the wood is affected. If only a few holes appear it is impossible to persuade much of the substance to enter the wood, but should the interior be honeycombed like a sponge a

warm solution prepared similar to a plasterer's jelly mould may be injected to make it practically solid. A varnish of resin, dissolved in spirits of wine, should afterwards be spread on the surface. This method was used by Mr. W. G. Rogers in restoring the carving by Grinling Gibbons at Belton House, Grantham. G.

Building Line Question.

L.K. writes: "I am erecting a building on a road containing much old property which to a great extent is copyhold. The old properties have steps protruding which give access to the shops and houses, which are built on rock. There is no settled building line, but I having acquired a piece of land, with shops adjoining, the building surveyor has set my building back to a new building line, which deprives me of a depth of about 8 ft. of frontage. Close at hand a gateway exists, with a set-back of about 2 ft. 6 in. The surveyor insists on my canting off at this point. Having set the new building line, can the surveyor insist on setting it back at this point?"

—Apart from private arrangement the new building line can only be set out under the provisions of Section 3 of the Public Health Act, 1888, which provides that no



LONDON HOUSE, CRUTCHED FRIARS, LONDON: GROUND-FLOOR PLAN.

W. E. CLIFTON, F.R.I.B.A., ARCHITECT.

(See page 408.)

new building shall be brought forward beyond a line drawn between the fronts of the existing buildings on each side of it. This setting back of the building line does not at all affect the ownership of the land in front (which is now left uncovered by buildings), and the landowner may still fence right up to his original boundary.

The throwing into the public roadway of the portions asked for by the surveyor may possibly be a wise thing for you to do, or it may be made to form part of a bargain between you, but the council have certainly no power to take it without paying for it.

F. S. I.

Partnership Accounts.

JUSTICE writes: "(1) A is an established architect when B joins him in partnership. Should A retire, what would be a fair value of the goodwill, in terms of so many months or years of A's income (from the partnership), for B to pay A for sole possession, A, of course, receiving his share of all work in hand? (2) In the above case, A has a pupil when B joins him, and B teaches the pupil in his own office. But in their partnership deed it is stated that two-thirds of the premium shall go to the introducing partner and one-third to the other; also, that for any work A had in hand when B joined him the proceeds should be apportioned according to the amount of work before and after their partnership. Should B have a one-third share of that part of the pupil's premium apportioned according to the time his articles run after the beginning of the partnership?"

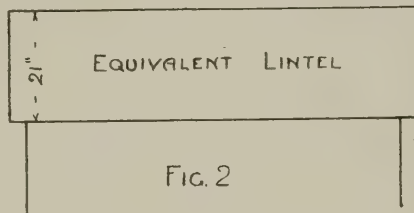
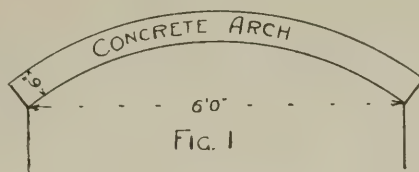
—(1) This is purely a matter of bargain, as so much depends upon the standing of the partners and the character of the business. In cases of "compulsory taking" an award of from two to (occasionally) three years' profits is made, but I do not think that the sale of a partner's share often amounts to more than from twelve to eighteen months' profits. I imagine that B would not object to pay A for the remaining share at the same rate as he paid for the first portion.

(2) Any payment due for the period of pupilage since the signing of the partnership deed should, I think, be treated as "work in hand" and uncompleted at that date. It seems to be fair that B should receive some share of the fee. F. S. I.

Relative Value of Arch and Lintel.

M. R. writes: "If it be desired to span an opening with a given quantity of concrete (not reinforced), which of the following forms will carry the greater distributed load? (1) The concrete in the form of a beam or (2) in the form of a segmental arch which, with the same amount of concrete as in the beam, will be the same thickness, but, of course, not quite so deep."

—A given quantity of concrete disposed in the form of an arch, will carry a much greater distributed load than the same quantity in the form of a beam, provided the abutments are rigid. As has been previously shown, a rectangular beam contains a virtual arch of half the depth for section of arch ring and half for rise of arch. Looking at it another way, the strength of a given arch section varies with the rise. Starting without any rise we have a simple beam whose resistance to stress with rigid abutments increases as the camber or rise increases, the only addition to the material being due to the slightly greater length round the curve. To take an example: Suppose plain concrete 1:2:4 in the form of an arch 6 in. by 6 in. in cross section and 6 ft. span, with a rise of 1 ft. as in Fig. 1,



there will be contained in it 2,890 cubic in. of concrete weighing say 218 lb. Allowing a compressive stress of 600 per sq. in. the arch will carry a distributed load of about 28,800 lb., less weight of arch equals 28,582 lb. Assume that a concrete beam of the same composition, width, and span, with 3 in. bearing each end, to carry the same external distributed load, will require a depth of about 21 in. as in Fig. 2. Then checking by calculation, the weight of beam will be

$$\frac{6 \times 21 \times 72 \times 301}{1728} = 682 \text{ lbs. and the}$$

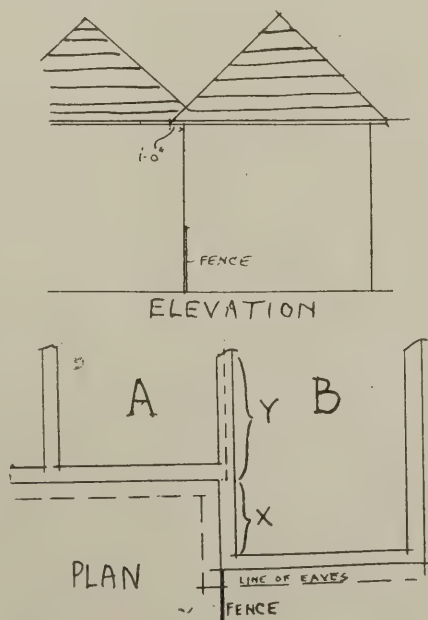
equation of strength $\frac{(W + w) L}{8}$

$$\frac{1}{6} b d^2 C, \text{ or } \frac{(28582 + 682) 72}{8} = \frac{6 \times 21^2 \times 600}{6}$$

or 263,385 equals 264,600, which practically balances. It therefore appears that nearly four times the amount of concrete is required to carry a load in the form of a beam as compared with an arch of the same material. HENRY ADAMS.

Eaves on Adjoining Houses.

H. S. writes: "The accompanying sketches show one house projecting in front of another, the party wall Y being taken straight out to form external wall X. Both houses were erected at the same time and the eaves (projecting 1 ft.) are, for sake of appearance, carried round the break as shown."



"(1) I take it that the actual dividing line would break from the centre of Y to the outside of X as shown by dotted line and fence line.

"(2) Would a purchaser of A be justified in having the projecting eaves along X removed if he wished to do so?

"(3) Would he (having purchased the house) have implied consent to the existing arrangement?

"(4) In the latter case (apart from the question of projecting eaves) would B have any right to enter on A's land to execute necessary repairs (such as repointing wall X), which obviously could only be executed by entering A's property?"

—If the two houses originally were the property of one owner and have since been sold to two owners, then the "status quo" must be maintained, and the replies to your questions will be:

(1) Yes.

(2) No.

(3) His consent is immaterial—he must accept things as he finds them.

(4) I think he would be entitled to enter in a reasonable manner, making good any damage to A's property caused thereby.

If the houses A and B were never in one ownership, but were built separately, the question arises as to how long the encroachment of the projecting eaves and spouting has existed. If for twenty years past, the answers to your numbered inquiries will be the same as given above; if for less than that period (nineteen years and one day practically), then A could call upon B to remove the encroachment or (what is more neighbourly) enter into an agreement to pay to A a small acknowledgment rental per annum, in order that a statutory title may not be acquired by B. F. S. I.

NEW MUNICIPAL WORKS.

The Local Government Board have held or have decided to hold enquiries into proposed expenditure by public bodies as follows:—

Water Supply.—Barnoldswick Urban District Council, £2,400 (October 28). Sewerage, Drainage, and Sewage Disposal.—Barnoldswick Urban District Council, £1,168; Orsett Rural District Council, £2,500 for Stanford-le-Hope (October 28); Harrow-on-the-Hill Urban District Council, £6,857; Peterborough Rural District Council, £900 (October 29); Chipping Norton Borough Council, £9,400 (October 30); Shipston-on-Stour Rural District Council, £5,300 (October 31).

Street Improvements, Public Walks and Pleasure Grounds.—Southport Borough Council, £3,750 (October 27); Ilkley Urban District Council, £9,500; Thornton Urban District Council, £1,207 (October 28); Darlington Borough Council, £2,168; Cheadle and Gatley Urban District Council, £2,125; Bootle Borough Council, £3,119 (October 29); Bedford Borough Council, £6,150 (October 31).

Various.—Hemel Hempstead Joint Hospital Board, infectious diseases hospital, £6,000 (October 23); South Shields Borough Council, electricity undertaking, £33,305; Barnoldswick Urban District Council, fire station, £2,460 (October 28); Darlington Borough Council, electricity undertaking, £21,190 (October 29); Harrogate Borough Council, ditto, £9,439; Nelson Borough Council, motor fire engine, £953 (October 30); St. Austell Urban District Council, housing, £5,062 (November 4); Saffron Walden Joint Hospital Board, infectious diseases hospital, £3,355 (November 5).

PROJECTED NEW WORKS.

Infirmary, Morpeth.

Morpeth Board of Guardians propose to build a new infirmary.

Municipal Buildings, Denbigh.

Denbigh Town Council propose to erect new municipal buildings.

Church, Newbury, Hants.

It is proposed to erect a new Catholic church at Newbury, near Portsmouth.

Sanatorium, Grimsby.

Lincoln Board of Guardians have decided to erect a new infirmary at a cost of £20,000.

Parish Hall, Coatham, Near Darlington.

A proposal for the erection of a parish hall at an estimated cost of £2,000 has been adopted.

Bridge, Shoreham.

Shoreham U.D.C. propose to build a bridge across the Adur, in the vicinity of Dolphin Hard.

Picture House, Stoke Newington.

It is proposed to erect a cinematograph hall at Stoke Newington to accommodate about 1,300 persons.

Hospital, Cardiff.

Cardiff Guardians have approved the general plan of a proposed new hospital to be erected at Llandough.

Church, Eccles, Near Manchester.

A new church is to be built at Peel Green, Eccles, near Manchester, on a site given by Lord Ellesmere.

Police Station, Mansfield Woodhouse, Notts.

Plans are being considered for the erection of a new police station at Mansfield Woodhouse, a site having been selected.

Mill at Shaw, near Rochdale.

The directors of the Lily Mill Co., Ltd., Shaw, have decided to proceed with the erection of a new mill to contain 98,276 spindles.

New Wing, Paisley Art Gallery.

A new wing is to be added to the Paisley Art Gallery, at the expense of Mr. Peter Coats. Mr. T. G. Abercrombie is the architect.

Public Baths, Paddington.

Paddington Borough Council have decided to expend a sum of £20,000 on the provision of public baths on a site in Manor Place, Harrow Road.

Telephone Exchange, Glasgow.

The authorities propose to erect a large modern telephone exchange on the south side of Glasgow to take the place of the four centres already in existence.

Church Halls, etc., Giffnock.

Church Halls and offices are to be erected in Greenhill Avenue, Giffnock, for Kirk Session of Eastwood, the architects being Messrs. Stewart and Paterson.

Kursaal, Hastings.

The Town Council have decided to purchase the hospital site on the sea front for £15,050, and to build a winter garden or kursaal at a cost not to exceed £20,000.

Town Planning, Newcastle.

A Local Government Board enquiry has been held into the application of the Newcastle City Council to adopt Part II. of the

Housing and Town Planning Act (1909), with reference to an area of 1,540 acres, situate partly within the city boundary, partly in the Borough of Wallsend, and partly in Longbenton.

School, Ashington.

Ashington school managers have asked the Northumberland County Education Committee to establish and equip a higher elementary school in the Ashington district.

Houses, Glasgow.

Plans have been passed by the Dean of Guild Court for the erection of three self-contained dwelling-houses in Helensburgh Drive. The architect is Mr. James Lindsay.

Paisley Abbey to be Restored.

Plans for the restoration work of Paisley Abbey have been passed by the Dean of Guild Court. The work is estimated to cost over £50,000, and all the funds are available.

Warehouse, Aberdeen.

Aberdeen Council have approved plans for a warehouse to be erected in Cathenne Street for the North of Scotland Equitable Loan Co., Ltd., from the designs of Mr. George Watt.

Mortuary, Southwark.

Southwark Borough Council will proceed shortly with the erection of a new mortuary and coroner's court in St. George's Churchyard at an approximate cost of £3,700.

Sailors' Home, Invergordon.

The Scottish National Council of the Y.M.C.A. have decided to erect a sailors' home at Invergordon to meet the requirements of a large number of sailors now based there.

Lunatic Asylum, Newcastle.

The erection is contemplated at Newcastle of a nurses' home, of two villa blocks to accommodate forty patients, and of an isolation block. The approximate cost is £23,984 rs. 8d.

Blackfriars Station to be Rebuilt.

Blackfriars Station on the District Railway is about to be almost entirely rebuilt. The reconstruction will include the widening of the west-bound platform, to which a new staircase will descend.

County Offices, Worcester.

Worcester Standing Joint Committee having settled the approximate accommodation required in their projected new county buildings, have instructed the county architect to prepare revised plans.

Variety Theatre, Glasgow.

Plans have been passed at Glasgow Dean of Guild Court for the erection of a variety theatre at from 480 to 510, New City Road and North Woodside Road. Mr. G. A. Boswell is the architect.

Public Baths, Nottingham.

The L.G.B. have held an inquiry into the application of Nottingham Corporation for permission to borrow £11,000 for the purpose of erecting new swimming baths and washhouses in the Meadows district of the city.

Oldham Town Planning Scheme.

The Oldham Housing and Town Planning Committee have decided to apply for powers to prepare a scheme of town planning. A report, accompanied by a plan, has been submitted by the architect, Mr. Fred Thorpe.

Markets, Sheffield.

Sheffield Corporation propose to transfer Fitzalan Market, Castlefields Market, and the wholesale fish market to another site. The plans of the city architect, Mr. F. E. P. Edwards, provide for new buildings two stories in height.

Phthisis Pavilion, Oldham.

The Local Government Board have approved the plans of the proposed new phthisis pavilion on the site of Westhulme Hospital, for the treatment of advanced cases of tuberculosis. The cost is estimated at about £2,500.

Improvements, Kingstown.

Kingstown Urban Council have approved a scheme for the clearing of an insanitary area known as Callaghan's Lane, the erection of thirty dwellings, and the opening up of a thoroughfare from Kelly's Avenue to Clarence Street.

Improvements, Bognor.

A Local Government Board enquiry has been held into the application of the Bognor Urban Council for sanction to borrow £1,983 for the widening and improvement of the promenade, and for £660 for extending the council offices.

Dock Improvement, Liverpool.

The Mersey Docks and Harbour Board are to consider a proposal to widen the shed on the west side of Alexandra Dock, to provide the necessary railway sidings, and to carry out certain paving of the roadway adjoining, at a total estimated cost of £25,850.

Garden Suburb, Tottenham.

The L.C.C. have approved a plan for the laying out of the remainder of the southern section of the White Hart Lane Estate at Tottenham and Wood Green for the development on the lines of a garden suburb, for the accommodation mainly of working-class people.

Schools, London.

The London County Council are about to erect a new school for the accommodation of a thousand scholars on the site of the old Congregational Church, Well Street, Hackney, and another school site has been secured by them at Westgate Street, London Fields.

New Bridge over the Clyde.

A conference has taken place between the representatives of the Glasgow Corporation and the Clyde Trust with a view to the selection of a suitable position for the new bridge over the Clyde. It is almost certain that the bridge will cross the river immediately to the west of the central station railway bridge. In order to get over the loss of wharfage caused, it is proposed to build an island wharf jutting out in the centre of the river from the central pier of the bridge, with access from the bridge roadway.

London.

The L.C.C. have consented to the erection of the following works: A building upon the site of Nos. 1 and 3, Urswick Road, Hackney, on the application of Messrs. J. Hamilton and Son, on behalf of Barlow and Sons, Ltd. An addition at Tower Royal Works, Hampstead, on the application of Mr. F. S. Hammond. A steel, iron, and concrete gangway at Butler's Wharf, over the public way of Lafone Street, Rotherhithe, on the application of M. T. Shaw and Co., Ltd. Buildings on the western side of Bishopsgate, City, next to Pindar Street and Primrose Street, on the application of Mr. S. Burdwood.

THE RISE OF RENAISSANCE ARCHITECTURE IN ENGLAND.*

BY A. E. RICHARDSON.

IN reviewing the series of magnificent Classic buildings which have been erected in this country during the past three centuries two methods can be followed. Both are of value. The first embraces a study of the lives of the architects whose endeavours formed the basis of the tradition. The second is to subject to critical analysis the design of those structures which form conspicuous landmarks in the movement.

Viewed from the standpoint of to-day, perhaps the second course of action is the sounder of the two, for by a critical study and analysis of the masterpieces of the past modern theories of architectural design can be strengthened and improved. The enormous range of the subject admits of the application of both theories, but the importance of the theory of architectural composition far outweighs the mere collection of historical data; and even though the latter may prove to be the more palatable, an exhaustive study of the massing and proportioning of buildings and their component parts cannot be overrated. Therefore it should be our endeavour to devote attention chiefly to the style, character, composition and purpose of each structure.

The lecturer said that he had to deal with seventy years of eventful history within the short space of an hour, and this necessitated keeping very closely to main events; otherwise, important facts would remain enshrouded in a mass of detail. The adventurous Elizabethan age had witnessed the journeyings of men of learning to the flourishing universities of Bologna and Padua. Details of Italian Renaissance architecture had been transplanted to England by devious routes, to be misinterpreted by native craftsmen. Italian books were translated into English, and the once sound vernacular building tradition was diverted into the tortuous channels of what is now conveniently designated as being Jacobean. The first decade of the seventeenth century, however, brought in its train a change so remarkable as to appear at first glance almost incredible. The haphazard application of Classic details to house fronts and internal decoration was, by the genius of one architect, changed to an architectural system of academic rank. Palaces and mansions were built coequal to the masterpieces of Italy, the land which inspired their creation. The accession of the art-loving Stuarts to the throne materially aided the movement in favour of transplanting the Classics to England.

James I. joined in the competition for acquiring antique objects of art for his private gallery, while his son, Prince Henry, made a splendid collection of antique gems which he bequeathed to his brother, afterwards Charles I. But the man who at this period stood indisputably at the head of English art collectors was Thomas Howard, Earl of Arundel and Surrey. Before 1612 he had made a comparatively lengthy journey to Italy, returning home at the end of that year. His love of Classic art prompted him to a renewed acquaintance with its monuments, and during the years 1613-14, he again travelled in Italy. This second visit is chiefly of interest because he had in his

entourage no less a person than the celebrated Inigo Jones, whose artistic taste was finally developed in the direction of pure Classic architecture.

At this period other collectors appear on the scene, among whom the Duke of Buckingham became a formidable rival to Arundel. Following the example of Arundel and Buckingham, Charles I. formed a collection of antique sculpture and a gallery of pictures. By the year 1628 the King's ambitions were turned to the shores of Greece, rumours of the treasures of which had by this time reached England, and the King's Admiral, Sir Kenelm Digby, sailed to the Archipelago to ship antique statuary for the Royal collection. Previous to this the Banqueting Hall had been erected at Whitehall and the grandiose extension of the palace had been projected. But the zeal of the King and the artistic coterie of cultured nobles who formed the Court received an abrupt check by the outbreak of the Civil War. The Royal collections of statuary and paintings were attached by Parliament in 1649; and the impetus given to architecture and the kindred arts by Royal patronage was abruptly checked. Then followed the execution of the King and the iron régime of the Commonwealth. The arts temporarily slept; but, somnolent as they became, the genius of John Webb, the zealous pupil of Inigo Jones, kept breath in the tradition.

With the period of the Restoration there concurred a rejuvenation of the arts, one which had but little in common with the early fruitful years of the century, but which was to be adorned by the advent of a circle of men of genius. Sir Christopher Wren is to leap into prominence as the greatest of English architects, Sir Peter Lely and Sir Godfrey Kneller continue the tradition of Vandyke. The Restoration plays of Dryden, Otway, and Wycherley mark a turning point in the history of the stage. The Great Fire of London is to be but an episode. Yet this period, apart from the convenient arrangement of divisions of dates, in reality heralds the glorious eighteenth century, the spirit of which extends over a greater number of years than is commonly supposed.

The Life and Work of Inigo Jones.

Walpole pays a warm tribute to the genius of Inigo Jones when he says that, "Jones, if a table of Fame like that in the 'Tatler' were to be formed of men of real and indisputable genius, would save England from the disgrace of not having her representative among the arts. She adopted Holbein and Vandyck, she borrowed Rubens, but she produced Jones: Vitruvius drew up his grammar, Palladio showed him the practice, Rome displayed a theatre worthy of emulation, and the King was ready to encourage, employ, and reward his talents. This is the history of Inigo Jones, as a genius."

It is a general supposition that the variations in the countenance of a nation's building style are mainly due to the influence of architects; this is only partly true. History reveals the fact that architects are usually the spokesmen, and rarely the originators of any departure from the orthodox trend. A study of the early years of the seventeenth century brings this fact into greater relief. The immense strides made in the development of English literature during the late Tudor period were responsible for the change in architectural

taste. Constant reference to Rome and Italy encouraged a desire in the minds of wealthy noblemen to travel abroad, to view for themselves the relics of a past civilisation. It followed as a matter of course that such persons travelled with a considerable following, among whom there was generally an artist to aid in the selection of antique statuary or prepare drawings of architecture; and, in this regard, the career of one who must be considered the father of modern English architecture can be introduced.

Inigo Jones was born on July 15th, 1573, in the parish of St. Bartholomew-the-Less, West Smithfield. Information concerning the early years of his career is but scant, but it is recorded that "he was early distinguished by his inclination for drawing and design, and was particularly taken notice of for his skill in the practice of landscape painting." Another story has it that he was apprenticed to a joiner in St. Paul's Churchyard.

Ben Jonson alluded to him in his "Tale of a Tub," where (Act iv., Scene 1.) he refers to the architect in the character of Mr. Medlay, the cooper of Islington:—

"But I am truly
Architectonicus Professor, rather
That is (as one would say) an architect."

Towards the close of the sixteenth century he paid his first visit to Italy, whether at the expense of William, Earl of Pembroke, or of the Earl of Arundel, is uncertain. In the summer of 1613 he undertook his second visit to Italy in the entourage of the Earl of Arundel, for whom he collected works of art. But during this visit he devoted his time to a thorough study of Classical architecture; not only making notes of the writings of Serlio, Vignola, Fontana, Sabacio, and Philibert de l'Orme, but studying the ruins of the Colosseum, the great Roman Thermæ and the Pantheon.

Preserved in the library of Worcester College at Oxford is the copy of Palladio's "Architecture," which belonged to Inigo Jones, and which was bequeathed to the College by Dr. Clarke. The margin of this book is annotated with notes of various antique buildings, and refers to visits to Rome, Tivoli, Naples, Vicenza, etc. In addition, there exists not a shadow of a doubt but that he was inspired by the refined work of the great Italian master Baldassare Peruzzi; work showing Greek influence at a time when even in Italy its beauty was little understood. The benefit to Inigo Jones of this contact with refined architecture is to be seen in the delicacy of the ornament which enriches the Banqueting Hall at Whitehall.

After his first foreign tour, he returned to England in 1604 with a great reputation as a traveller, but very little as an architect. Between the years 1604 and 1612 he was constantly employed designing scenery for the court masques, with a visit in 1609 to France in the King's service. In 1610 he received his appointment as Surveyor-General to Prince Henry of Wales, and in due course superintended certain repairs and alterations at St. James's Palace, the Palace at Richmond, work at Sheen, etc. With regard to his designs for the court masques, many of these are preserved in the Burlington Collection at the Library of the Royal Institute of British Architects.

(To be concluded.)

* The first of a series of lectures on "The Work of the English Architects of the Eighteenth Century and the Neo-Classical School of the Nineteenth Century" now being given on Thursday evenings at University College, Gower Street.

SPECIAL LEGAL REPORTS.

Builders' Counter-claim for Damages.*Dorman, Long and Co., Ltd., v. Spiers and Son, Ltd.*

October 20. King's Bench Division. Before Mr. Justice Channell.

This was an action by Messrs. Dorman, Long and Co., the manufacturers of constructional steel work, of the Britannia Works, Middlesbrough, against Messrs. Spiers and Son, Ltd., builders and contractors, of Hill Road, St. John's Wood, London, to recover the sum of £104 odd, the balance of an account for constructional steel work supplied. The claim was admitted and judgment given for the plaintiffs for that sum. The defendants set up a counter-claim for £103 15s. 10d. damages owing to delay by the plaintiffs in completing the work.

Mr. Radcliffe, K.C., and Mr. Bedford Dorman appeared for the plaintiffs and Mr. Doughty for the defendants.

Mr. Doughty, in opening the counter-claim, said the main point in the counter-claim was damages for delay. The defendants were in a large way of business as builders, and they took a building agreement in respect of two houses in Hatton Garden, London, Nos. 37 and 38. They pulled the old buildings down and re-erected a large modern building on the site, some £11,000 being spent on the building. They consulted the plaintiffs as to the constructional steel work. Messrs. Homer and Lucas, the defendants' architects, sent the plaintiffs plans of the proposed buildings, and from those plans the plaintiffs got out their plans for the constructional steel work. Upon the tentative plans a contract for £865 was entered into for the complete steel work—delivered and erected in position by the plaintiffs. It was a term of the contract that the plaintiffs' work should be completed within three months from the settlement of the working dimensions and the approval of the steel work by the district surveyor. He did not think there would be any question as to the surveyor, but there was a point as to when the working dimensions were settled. Defendants said they were settled on August 15th last year and that the three months expired on November 15th. The plaintiffs did not complete their work till January 2nd and the result was that their delay delayed the completion of the whole work. Owing to the plaintiffs' delay the defendants had lost the rack rent of the building, which worked out at about £3,500 a year, and they claimed for loss of rent for six weeks or two months, £100. A sum of £1 9s. 3d. was admitted by the plaintiffs and defendants claimed £2 6s. 7d. in respect of shortening of girders. The dispute was with regard to the measurements at the back of the building. Defendants' case was that a representative of the plaintiffs took an incorrect measurement of the width of the building at the rear, resulting in the girders being too wide and consequent delay in cutting them. Counsel said from the correspondence it appeared that the defendants made the plaintiffs responsible for the measurements.

Mr. Radcliffe said the defence of the plaintiffs to the counter-claim was that the steel work was not approved by the district surveyor on or about June 3rd, 1912. The working dimensions were approved from time to time. When the building was pulled down it was discovered that the adjoining building at the rear overhung the site to the extent of 9 in. more than in the front, which threw the girders out of

the width they had been made. Plaintiffs said the constructional steel work was carried out in accordance with the agreed working dimensions and that the defendants had not suffered any loss of earnings.

Mr. E. W. Spiers, of the defendant firm, gave evidence in support of the defendants' counter-claim. He stated that his firm all the way through told the plaintiffs' representative who measured for the steel work that he had taken wrong measurements for the girders in question, but he refused to listen, and said he preferred to rely on his own measurements.

Cross-examined: Defendants had never complained in writing to the plaintiffs, but they had to plaintiffs' representative personally.

Mr. Frank Woodruff, the defendants' foreman, stated that several of the girders supplied by the plaintiffs were too long, and several were not put in a right position.

Mr. Phillip A. Todd, an architect, said he was called in by the defendants in October last to take the measurements. He did so with the aid of the foreman, who indicated the centre of the party wall. The dividing line of the new wall was the same as that of the old wall. He made the measurement less than that made by the plaintiffs.

This was the case for the defendants, on the counter-claim.

Mr. Radcliffe opened the defence to the counter-claim on behalf of the plaintiffs, and said the first question was what was the contract time, having regard to what happened.

His Lordship thought that the case turned upon whether the plaintiffs took the correct measurements. The plaintiffs were bound not to make any mistakes. If they did they were responsible.

Mr. Radcliffe agreed, and said he would deal with the case in that aspect. He regretted that his chief witness, Mr. Squire, who took the measurements, had gone to India and not yet returned. Counsel submitted that if the Court took the document in this case it was clear that the measurements arrived at by Mr. Squire were correct and that the measurements said to have been taken by the defendants were not correct. He concluded that the defendants by their action had approved of what Mr. Squire did.

His Lordship: Your difficulty is that you cannot call Mr. Squire, and you have only the evidence given on behalf of the defendants.

Mr. Radcliffe said his evidence would show that the centre line of the building was set out by the defendants before Mr. Squire came on the scene.

Mr. George Stainthorpe, chief assistant in the office of the plaintiffs, in London, said the matter was placed in the hands of Mr. Squire. The delivery of a mass of steel work was much interfered with owing to the lightermen's strike last year.

Cross-examined, witness said the plaintiffs took the dimensions, but asked the defendants if they were correct. He believed the plaintiffs' dimensions to be correctly right, and that the defendants altered their party line.

Mr. H. W. Firmin, formerly walking foreman on the building in question for plaintiffs, said he got the centre line of the building from the defendants' foreman, and he made his measurements from the line, the defendants' foreman checking him.

Cross-examined: Woodruff, defendants' foreman, never complained that the work was being delayed.

William Roberts, foreman erector for the plaintiffs, under the last witness, stated that the steel construction work was delayed by the brick work on three occasions. Witness had never admitted that the plaintiffs were in any way to blame in the matter.

Mr. J. E. Nupli said the party wall appeared to be in a different position between the time Mr. Squire measured it, and when witness measured it later on.

This was the whole of the evidence, and counsel then addressed his lordship.

His Lordship, in giving judgment, said the plaintiffs tendered for the work on certain plans, but the defendants reserved to themselves the right to vary, and this put an end to the contract that the work was to be carried out within three months. But the plaintiffs were under obligation to do the work in a reasonable time, and without mistakes. His Lordship came to the conclusion that, in fact, a mistake was here made, and in this connection he regretted that he had not had the evidence of Mr. Squire. The result was that he came to the conclusion that Mr. Squire did make a mistake, and plaintiffs were responsible for the sum of £2 6s. 5d., the cost of altering the girders. There was evidence upon which he could come to a conclusion that there was a delay by the plaintiffs, and therefore the defendants had sustained damages, but they were only nominal, and he assessed them at £10. Judgment for defendants, on the counter-claim for £13 9s. 11d., and costs, plaintiffs having already obtained judgment on the claim.

Lease of a House—Alleged Breach of Agreement as to Repairs.*Jensen v. Cawley and Others.*

October 23. King's Bench Division. Before Mr. Justice Channell.

This was an action by the plaintiff to recover from the defendants money expended on repairs, etc., to a house, surveyor's fees, and other sums.

Mr. Holman Gregory, K.C., and Mr. Drucquer appeared for the plaintiff; Mr. Sankey, K.C., and Mr. Mulligan represented the defendants.

Mr. Holman Gregory, in opening the action, said his client was an American citizen carrying on business in England, and the defendants were Mr. T. H. Cawley and his three sisters. The claim arose out of the taking by the plaintiff for the defendants of a house in Prince of Wales Terrace, Kensington, of the rental value of £250 a year. What happened was that in June, 1912, the house was empty and Mr. Jensen and his wife met Mr. Cawley on the premises, and terms were discussed as to a lease of the house. The house was then in a very bad condition. Mr. Cawley agreed with Mr. Jensen that if he would take the house on lease for fourteen years from August 12th, that he (Mr. Cawley) would put the house in a good state of repair throughout. This would take some time to do, as the drains had to be pulled up and an extra bath put in in addition. In fact, Mr. Cawley said he would have the house done up from top to bottom. Mr. Cawley said the house would be ready on August 10th and the parties agreed to that. Mr. Jensen then made arrangements to leave his town house in June and to warehouse his furniture. A specification as to the work to be done was agreed to. Mr. Jensen then went away for his holidays, and when he arrived back home on August 10th he

found the house almost in the same condition as when he left it in June, with the exception that the drain work was done. Every opportunity was allowed the defendants to go on with the work, and counsel said carpenters were doing drain work, labourers had been whitening ceilings without washing them first, and leaving all the dirt in the corners. The paint work had been dealt with in a similar manner. The ultimate result was that Mr. Jensen took possession of the premises and ordered out the men then there. Mr. Jensen called in another man to do the work, which was carried out in a month at a cost of £178. Mr. Jensen now claimed in respect of this money expended and also for the surveyor's fee, £15, and expenses incurred by him by having to reside elsewhere than on the premises owing to this delay. The real issue, said counsel, was whether the work was properly done and whether it could be done in the time the parties agreed to.

His lordship thought that the first question for his decision was what were the terms of the contract between the parties.

Mr. Holman Gregory assented.

Mrs. Jensen was then called and gave evidence in support of plaintiff's case, Mr. Jensen being absent in America on business. The rent under the lease was £250 a year for the first seven years and £275 a year for the remainder of the term.

Cross-examined: Mr. Cawley might have said that the lease would have to be a full repairing lease. She did not recollect Mr. Cawley saying that the repairs, etc., would take three months, as the drainage plans would have to pass the sanitary authority. Her husband did not say he did not mind whether the repairs were done, as he wanted the house.

Mr. Cawley, one of the defendants, was then called and said when he met Mr. Jensen, that gentleman said, "Never mind the work, I want the house." Witness said he never promised to do the work by August 10th, as it would have taken three months to carry it all out.

Cross-examined: Witness said he agreed to do all the work mentioned in the specification.

Witness added that he told Mr. Jensen that the repairs would take a long time to do and stated three months as the probable time.

Re-examined by Mr. Sankey: Mr. Cawley said two eminent surveyors had told him that the work that he did was done properly. He had never denied that he was responsible to do the work in the specification. Mr. Jensen could do anything he liked outside the specification. Witness declared that Mr. Jensen had possession before August 10th. He had a key of the house and had his own workmen there. Witness declared that the work could not be finished by August 10th.

His Lordship observed that decorations and repairs could be done in a very short time if necessary. Look how quickly Buckingham Palace had been redecorated in front.

Mr. Sankey: I don't suggest this is Buckingham Palace, though it is Prince of Wales Terrace.

Mr. William Edmondson, a clerk in the employ of Mr. Cawley, who was present when Mr. Jensen agreed to take the house, gave evidence corroborating the evidence of the previous witness as to the term of the lease and when it was to commence. Witness said the house had twenty rooms.

Other evidence having been given on behalf of the defendant, counsel addressed his lordship.

His Lordship, in giving judgment, said on this preliminary point his decision

must be for the plaintiff. The question was, What was the contract in regard to these repairs, when the lease was agreed upon between the parties? It was therefore unimportant what was said during the negotiations. The question was, What agreement was ultimately come to? He was inclined to the view, inasmuch as three witnesses had spoken to it, that in all probability the period of three months was mentioned during the negotiations, but that was unimportant if the ultimate agreement for something else was made. What was agreed to when the lease was agreed to? The lease was the consideration for a promise to do the work. The lease was agreed to be a lease, not only that it was to commence on August 12th, but that the rent was to commence on August 12th also. The arrangement was practically that the parties had agreed to this date, because that was the time upon which the landlord was willing to complete the repairs, although previously he had said they would take longer. The evidence for the defendant was considerably unsatisfactory on many points. Things mentioned during the discussion were unimportant. The correspondence, as far as it went, supported the plaintiff much more than it did the defendant. There was this strong fact that the plaintiff was to get the house for ordinary purposes of habitation on August 12th. Under the circumstances his judgment must be for plaintiff.

Mr. Holman Gregory stated that the rest of the case concerned a mass of details, as every item would have to be gone into now, and he suggested that it should be referred to a referee.

His Lordship said that the best plan would be for him to direct that the rest of the issues go to an official referee, unless the parties agreed upon another course. The costs of the present issue he had decided to be the plaintiff's in any event.

Judgment for Builders: Defendants Withdraw Allegations.

Smallbone and Sons v. The Trustees and Committee of the Schieff Home of Recovery.

October 20. The Official Referee's Court. Before Mr. H. W. Verey.

When this case was called on for hearing,

Mr. H. Walker, K.C., for defendants, said there had been a conference, with the result that this litigation was brought to an end. The action was for a balance due on a building account and there had been a payment into court by the defendants of £110. There was a counter-claim in respect of a fire, concerning which there had been a payment into court by the plaintiffs. The parties had agreed upon the following terms. The plaintiffs would accept the two sums in court—£110 which the defendants had paid and the £10 which they themselves had paid—as against the defendants' counter-claim, in full satisfaction of what was due to them, and defendants would pay the plaintiffs' taxed costs. That brought both the claim and the counter-claim to an end. The counter-claim arose in this manner. After the building was completed a fire broke out, and the counter-claim depended on the case by the defendants, that that fire was the fault of the plaintiffs. The plaintiffs felt very sore that they should have been blamed. He was quite prepared to say that this fire should be left as a matter of mystery and that no one knew how it originated. He did not put its origin down to the fault of the plaintiffs.

Judgment was then entered for plaintiffs on the claim and counter-claim on the lines announced, with costs, there being an order for payment out to the plaintiffs of the two sums of £110 and £10.

Mr. Walker: The defendants withdraw the allegation that the fire was the fault of the plaintiffs.

Mr. G. C. Rees, for the plaintiffs, a Streasley firm of builders, regretted that there had been any friction between the plaintiffs and the defendants, and was glad that it had been settled now finally. The Home was at Cobham, Surrey.

The Official Referee congratulated the parties on arriving at a settlement and saving time and a large expenditure.

Action against the London Pressed Hinge Company.

Booty v. London Pressed Hinge Co.
October 22. King's Bench Division. Before Mr. Justice Atkin and a Common Jury.

This was an action by Maud Emily Booty, a machine-hand, of Poplar, against the London Pressed Hinge Co., of Gleggall Road, Millwall, to recover damages for the personal injuries sustained by her while following her employment on April 29th, 1913.

Plaintiff's work was to fit metal into a press and take it out when the holes were stamped in the hinges, ready for supplying to builders. The die came down on to her right hand, and so injured it that she now only possessed the thumb and the index finger. She had been unable to work since, and her hand was still painful.

The girl's father also claimed in respect of loss of earnings.

The case came before the Court for assessment of damages, and the jury awarded the plaintiff £100 and her father £1 10s.

It was stated that the defendants had already paid into Court a sum larger than that awarded by the jury, viz., £200.

Judgment was accordingly given for the plaintiff for £100, and for her father for £1 10s.; plaintiff to have the costs up to the date of the payment into Court by the defendants.

OBITUARY.

Mr. E. A. Runtz, F.R.I.B.A.

We regret to announce the death of Mr. Ernest A. Runtz, F.R.I.B.A. He had been suffering for over a year from the after-effects of an operation. Mr. Runtz was the sixth son of the late Mr. J. J. Runtz, of Stoke Newington, and brother of Sir John Runtz. For some years he was the junior partner in the firm of Walker and Runtz, of Moorgate Street, and when that partnership was dissolved he became distinguished as a designer and builder of theatres. His scheme of redecoration of the old Adelphi may be remembered, and the Gaiety in the Strand is a notable example of his work. He built several provincial theatres and others in London, and in addition was the architect of the building of the Norwich Union Assurance Company at the junction of Piccadilly and St. James's Street. Among his more recent work may be mentioned his employment by the London County Council in the matter of the Strand widening.

Mr. Richard Blundell.

The death occurred, last week, of Mr. Richard Blundell, at his residence, 113, Portland Street, Southport, at the age of seventy-one years. Mr. Blundell was born at Halsall, and had resided in South-

port for forty years. He passed away after an illness of only three weeks. Mr. Blundell was a builder by trade, but had not followed his occupation for about three years.

Mr. J. Austin.

The death has occurred of Mr. J. Austin, a prominent Exeter builder, of the firm of Westcott, Austin, and White. Death was the result of a bicycle accident.

NEW CONCRETE CONSTRUCTION WORKS.

On Tuesday, October 21st, a visit was paid by a number of experts and others to the new works of the Universal Concrete and Construction Co., Ltd., at Hampton, Middlesex. These works, which stand in an area of ground seven acres in extent, form a long continuous building, constructed in sections, each having its own individual top light. By this method of construction the further extensions which, in view of the rapid expansion of the business, will become necessary from time to time, may be made with the utmost facility.

The company, in addition to their activities in reinforced hollow concrete construction, specialise in concrete building blocks, partition slabs, reinforced concrete fence posts, and patent "Ferrostone" glazing bars, for the manufacture of which fine up-to-date machinery and appliances have been installed. The visitors made a complete tour of the works and watched with considerable interest the various blocks, partition slabs, etc., in process of manufacture, from the mixing of the aggregate to the turning out of the finished work.

The glazing bars are made in teak moulds placed on a vibrating table, which has the effect of shaking the cement mixture while in its semi-liquid state, thus eliminating all possibility of air-bubbles. The bars are reinforced with round steel rods laced together, and are made in all lengths up to 14 ft., with reinforced stop ends, against which the glass abuts. Small grooves on either side of the main rib are filled with asbestos packing, and on this the glass is cushioned, being secured by small brass clips and bolts. By its lightness, its strength, its watertightness, and its ability to resist fire and acid fumes, the extensive adoption of this system of glazing should be assured.

A test of a reinforced hollow floor, arranged to take place on the same day, had to be postponed on account of the wet weather.

Consulting Architect for Kingsway.

The Improvements Committee of the L.C.C. has recommended the employment of Sir Ernest George, A.R.A., at a fee of £700, as consulting architect in connection with the erection of buildings on a site at the east end of Kingsway, at its junction with Aldwych, which has been let on lease for ninety-nine years at a rent of £2,900 a year.

The Buckingham Palace Scaffolding.

The scaffolding used in the refacing of Buckingham Palace is now nearly all dismantled. Two Waygood 30-cwt. electric lifts were built in connection with the gantry, in order to facilitate the conveyance of workmen and material required during the work of reconstruction. We understand that this plan proved very efficient in practice.

THE ROME SCHOLARSHIP IN ARCHITECTURE AWARD.

The Royal Commissioners for the Exhibition of 1851 have awarded the Rome Scholarship in Architecture to Mr. Harold Chalton Bradshaw on the recommendation of the Faculty of Architecture of the British School at Rome. Mr. Bradshaw is the first winner of the Rome Scholarship in Architecture, which is open to British subjects under thirty years of age, and is of the value of £20 per annum, and tenable for three years at the British School at Rome.

The Faculty for Architecture, who adjudicated upon the designs, consisted of the following gentlemen: Mr. Reginald Blomfield, Chairman, Professor W. R. Lethaby, Mr. E. L. Lutyens, Sir Robert Lorimer, Mr. Ernest Newton, Professor C. H. Reilly, Mr. J. W. Simpson, Mr. Leonard Stokes, and Sir Aston Webb.

Mr. H. C. Bradshaw.

Mr. Harold Chalton Bradshaw was born in Liverpool in February, 1893. He was educated at the Holt Secondary School, Liverpool. In his sixteenth year he joined Professor Reilly as his private assistant, and to help with the lantern at his lectures. In 1911, the University of Liverpool made him a grant enabling him to join the school of architecture, where he is at work at present as a third year student. Last July he gained the University Certificate in Architecture in the first class, so obtaining exemption from his



MR. H. C. BRADSHAW

(Who has been awarded the First Rome Scholarship in Architecture.)

Intermediate Examination, R.I.B.A. He was also awarded at the same time the Holt Travelling Scholarship of £50. Last Christmas he competed for the Soane medalion, and was placed second and was awarded an honorary mention. About the same time he obtained the first of Sir William Lever's prizes in the Liverpool School for a design for a new river front for Liverpool, which was published in this journal.

When the Testimony of Study designs for the Final Examination of the R.I.B.A., were first founded the Institute selected Mr. Bradshaw's design for a monument to commemorate the founding of London to send round to the allied societies and schools as an example of draughtsmanship. Mr. Bradshaw has

since had a large number of designs approved as Testimonies of Study, several of which have appeared in these pages.

Mr. Bradshaw is a very fine colourist, his drawings in this respect being among the finest student drawings of recent years. It is needless to say that, with such ability and work to his credit in his twentieth year, we anticipate for him a very brilliant and successful career.

COMPETITIONS.

Concert Hall, Aquarium, Brighton.

Brighton Town Council have decided to invite competitive designs for a new concert hall at the west end of the Aquarium, to seat 2,500 people. Premiums of £100, £50, and £25 are to be awarded.

Premises, Stalybridge.

In a limited competition for the extension of the central premises of the Stalybridge Industrial Co-operative Society, Ltd., the design of Mr. Wm. Marshall, architect, of Stalybridge, has been accepted and awarded the premium of £20.

Sanatorium, Llanrhaiadr, Denbigh, N. Wales.

Mr. Edwin T. Hall, F.R.I.B.A., assessor in the above competition, has awarded first place to Mr. T. Taliesin Rees, Liverpool, second to Mr. Willoughby Thomas, Cardiff, and third to Mr. Sidney Williams, Cardiff. The building is estimated to cost £20,000.

Fire Station, etc., Blackburn.

Mr. F. E. Briggs, assessor in the above competition, has made the following awards: First, £100 (included in commission), Mr. Walter Stirrup; second, £50, Mr. John Hayhurst; third, £25, Mr. F. J. Parkinson. The competition was limited to local architects.

Southfield Estate, Odsal, Bradford.

Fifty-nine designs were submitted in a competition for the lay-out of the above estate, upon which the Corporation propose to erect 600 working-class dwellings. Mr. Henry T. Hare, F.R.I.B.A., the assessor, has made the following awards: First (£300), Mr. H. S. East, A.R.I.B.A., London; second (£200), Messrs. Lucas and Lodge, with Mr. P. Badcock, London; third (£100), Mr. Patrick Abercrombie, Liverpool.

R.I.B.A. FINAL EXAMINATION.

The Board of Architectural Education of the R.I.B.A. announce that the designs submitted by the following students, who are qualifying for the Final Examination, have been approved:

Subject X.—(a) Design for a Classical Villa.

J. W. Bull.	G. E. Francis.
G. W. Callender.	R. Lone.
A. D. Clare.	A. E. Maxwell.
C. Dickeson.	C. G. Ripley.
S. Fernyhough.	(Miss) M. Shewen.
E. Fincham.	F. Williamson.
J. C. Fowell.	W. C. Young.

(b) A Pier at a First-Class Watering Place.

F. A. Barley.	A. J. Wood.
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"The Conditions of Building and Engineering Contracts."

We regret that, owing to great pressure on our space, we are unable this week to find room for the fourth article by Messrs. Rimmer and Thomas on the above subject. We hope, however, to include it in our next issue.

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Un'Inghilterra presso il Signor D'Alton Cavalieri & Co.

(From Piranesi.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

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CAXTON HOUSE, WESTMINSTER.

VOLUME 38. No. 982.

The New Front of Buckingham Palace.

NO building erected in London within recent years has had more public attention directed to it than the new façade of Buckingham Palace, now completed to the design of Sir Aston Webb. There are many reasons for this. To begin with, a great deal was written in the newspapers about the old front by Blore, which, because of its quiet character, and particularly because of its dirty condition, served to provide that tag, "the ugliest palace in Europe," which might be counted upon to catch the public eye. In passing, it may be as well to say that such a catchphrase was about as ill-founded as Lord Beaconsfield's in reference to Trafalgar Square. Blore's front did not make the building the ugliest palace, and Trafalgar Square is not, and never was, the finest site in Europe.

In this matter of Buckingham Palace, Blore has been both maligned and over-rated. His elevation, considered on paper, was certainly not a very brilliant piece of design: it was, in fact, rather a dull conception at best, and the sculpture groups which embellished it at a few points reached but a low level of achievement. The informed critic, unbiassed by the many personal whims which so greatly warp contemporary criticism, might well have said that, taking it altogether, Blore's front was an insipid design carried out in Caen stone whose painted surface had been allowed to get into a deplorably dirty condition. Yet the writer is convinced that it was this sordid surface, rather than anything intrinsically bad in design, that brought the façade into disrepute among the public.

Its unattractive appearance entered into the consideration of the Queen Victoria Memorial scheme from the commencement. Many will remember that Sir Aston Webb's accepted design for the National Memorial included on its west side a columned screen which was intended to obliterate the façade as much as possible, to cut it off as though it were an inferior thing having no relation to the splendid mass of marble, though one or two competitors did make the refronting of the Palace a part of their concern. When, however, Sir Thomas Brock's work, with its surrounding fountain-basins, had been uncovered, it soon became evident that something would have to be done with the façade of the Palace in order that the whole scheme might be brought into harmony.

There are some who think that if Blore's façade had been cleaned down and repainted, and certain of its sculptural adornments altered, a satisfactory result would have been attained at comparatively small cost. But the general prejudice against this façade was a very deep-rooted one, and so the final decision to sweep it away and substitute a new front in Portland stone is only what might have been expected.

The new work now stands revealed, and we are in a position to form a correct estimate of it. Taking it altogether, the writer thinks that there is a decidedly imposing air about it; it is, in fact, the best thing that Sir Aston Webb has ever done. When, last Spring, the perspective of the design was exhibited, the scheme

with its pedimented wings and string of pilasters between offered little that was striking in the way of architectural design—it looked very much the kind of thing that had been done before, and done better; but the work as executed is a great improvement on the drawing. The large Corinthian columns in the centre feature and the end pavilions, with their rich capitals, have an admirable effect, and in their present state of immaculate cleanness are very attractive to the eye, while the pilasters do not show so prominently as they did in the perspective, but take their place far more appropriately as part of the wall surface.

There are details about the façade which one may not like—for instance, the poor shape of the balusters, and the heads to the windows between the columns of the end pavilions; but, in spite of these points for criticism of detail, there is no questioning the fact that the general appearance of the façade is good; it observes the architectural proprieties, and has a stately look which is thoroughly in accord with its regal associations.

Where cause for criticism may be advanced is not in respect of any detail of the façade, but in the disfigurement of the skyline with chimneys and what are apparently water-tanks on the roof. When the observer is close to the front he sees the balustrade clear and sharp against the sky as the crowning feature of the whole design. As soon, however, as he gets a little distance away some most unfortunate excrescences come prominently into view, over the end pavilions and in other parts. Chimneys and tanks we know have to be provided, but surely it was a grave mistake not to obliterate them in this instance. The façade is based on fundamentally symmetrical lines, and is intended to present a stately front consonant with its palatial requirements, yet these excrescences on the skyline largely defeat the object which underlies the whole scheme. One might argue that the classical buildings from which it derives its original inspiration were built in countries where chimneys formed no part of the equipment, and that by translating the same elements into a country such as our own it is inevitable there should be corresponding deficiencies in the final result. As a practical matter, however, in this case there was no occasion to allow such blemishes on the skyline. They are undoubtedly a grave defect, and it would be a vast improvement if they could yet be obliterated; nevertheless, apart from them it will be generally admitted that the façade is a very successful piece of work as it stands in all its freshness to-day. The only question that arises in the mind of the writer is, that as it faces east and therefore can never be washed by the prevailing rains, its appearance in years to come may be far less satisfactory than it is at the present time. It may ultimately become dingy, when, conceivably, something of the same kind of criticism might be applied to it as was directed against Blore's design. But at the moment we are only concerned with the façade as it is, not with what it might become, and, thus considered, Sir Aston Webb is to be complimented on so successfully carrying out his task.

R. R. P.

District Surveyors: Reform in Sight.

WE note with much satisfaction that a reform which we alone of the technical Press have consistently advocated for years past is at length in a fair way to take effect. We understand that the London County Council is taking steps to bring forward an amendment of the London Building Act with respect to the fees chargeable by district surveyors, and that certain of the metropolitan borough councils advocate the abolition of the office of district surveyor. Whether or not the duties of this functionary are to be ultimately transferred to the borough councils, we feel confident that, at all events, the out-of-date and absurd system upon which he is remunerated cannot survive scrutiny. It is vexatious to all concerned, and assuredly not least so to the district surveyor himself, whom we desire to see released from the invidious task of collecting his own fees upon the work which it is his duty to inspect. We have said before, and we repeat it with pleasure, that the district surveyors are an honourable and a highly competent body of men, who, as a rule, discharge their duties with great skill and much forbearance, and we sincerely trust that they may share to the extent of their respective merits in the all-round benefit which should certainly accrue from reorganisation. We must again insist, however, that there is most urgent need of drastic reform in building inspection. Not only is it necessary to put the surveyor beyond all temptation to take more interest in his fees than in his functions, by paying him an adequate salary, but a clean sweep must be made of all the anomalies and injustices of the existing system. At present, as we have more than once taken occasion to point out, it is possible to charge fees not only on the cost of a small addition to an existing building, but on the cost of the main building itself, so that the fees on the added work may actually amount to more than the cost of construction! So ridiculous, and so unfair, may the incidence in certain circumstances become, that we sometimes hear of district surveyors deliberately refraining from taking advantage of their opportunities to exact fees which they have seen to be disproportionately heavy. Not all of them, however, can be expected to have such a tender regard for the quality of mercy, and there ought to be no occasion for its exercise. In fact, it has always seemed to us to be perfectly preposterous that a builder or building owner should be charged any fee whatsoever for the (to him) very dubious advantage of having his work inspected. It is not in the interest of the builder or building owner that inspection is made, but in that of the general public, who ought therefore to pay for it. Not only would this reform relieve the builder of one of the many burdens of taxation under which he groans, but it would free him from much uncertainty as to computing and costing, and from no inconsiderable degree of anxiety as to whether or not the problem of what fees are actually due to the district surveyor will not have to be determined in the courts; and the building owner would no longer be deterred from making such improvements in his premises as may, under the present system, cost him more in fees than the work is worth. It is perfectly clear that, on the whole, the antiquated system of inspection under district surveyors is vexatious, wasteful, and iniquitous in its effects, operates in restraint of trade, and should be abolished without delay.

Thatch Roofing.

MILD protests are being made against a decision by the London County Council Parks Committee to substitute asbestos tiling for the worn-out thatch of a rustic shelter in the Horniman Gardens at Forest Hill. There is, of course, the usual talk about "vandalism," a word that by its frequent abuse is rapidly becoming meaningless, and is peculiarly inappropriate to the present issue. Thatching is materially an abomination, and morally a snare. It is

the most unhygienic roof-covering ever devised by the wit or witlessness of man, and it fosters a fatuous and enervating love of "picturesqueness." Thatching would be offensive if it were merely "pretty-pretty" and unarchitectural; and everybody ought to know by this time that it is much worse than that. Its only obvious merit is that it so easily takes fire, and thus very conveniently gets rid of the myriads of multifarious disease-germs of which it is an unrivalled collector and distributor. Sir Benjamin Ward Richardson's revelations of the deadliness of the thatch in fostering filth and propagating fevers should years ago have rendered obsolete this primitive and makeshift method of covering roofs.

A Suggestion for Bridge Design.

AN interesting suggestion with regard to bridge-building was made by Mr. C. H. Hopwood, F.S.A., in the course of a lantern lecture on "London Bridge, Old and New," which he delivered before the City of London Tradesmen's Club. When, a few years ago, London Bridge was being widened, the temporary bridge contrived for foot-passengers was roofed in, and this convenience was much esteemed in wet weather. It occurred, therefore, to the author, that this point might be taken into consideration in preparing the designs for the new St. Paul's Bridge. If the footways of the new bridge were arcaded, a monumental design could be developed, the great central arch supporting towers in the way that old London Bridge supported its chapel. "Here was an opportunity for an architect to make a new departure, give comfort to foot-travellers, and adorn the City with a beautiful and majestic structure." A flat roof to the arcade, it was further suggested, would form an open-air promenade which would be specially useful "in time of pageantry." In the ensuing discussion it was a doctor who expressed the opinion that such an arcade would favour the accumulation of refuse and interfere with sanitation, and another gentleman feared that a covered way would be the resort of itinerant pedlars. These objections could be easily overcome: they are merely matters of police. But a covered way would be of doubtful advantage if, during wet weather, people used it as a shelter, or even if they did not. It would obstruct the view up and down and across the river; and, in whatever style it was designed, it would, by its mere bulk, smack of mediævalism.

Competitions—"and Other Forms of Gambling."

ARCHITECTURAL competitions—a perennial subject of controversy—are being denounced and defended again in an extensive newspaper correspondence—this time in the "Manchester Guardian," and with reference to the Manchester Royal Exchange. Our old familiar friend "Fair Play" (a formidable rival to the redoubtable Mr. Algernon Ashton), having referred to architectural competitions as "a gamble," Mr. William Affleck contends that, on the contrary, an architectural competition is one of brains and ability, precisely like a contest to be First Wrangler, and he refers to the plans of the Manchester Assize Courts, the Technical School, the Welsh National Library, the London County Hall, and the Wesleyan Hall, Westminster, as exemplifying the sweet uses of competition in enabling "some of our best men to come to the front and to work out plans of exceptional merit which otherwise would never have seen the light." One would have thought all this to be *res judicata*; but a correspondent signing himself "Architect" refuses point-blank to accept "this 'game-of-skill' line of argument as a cloak to cover the evil effects of lotteries and other forms of gambling." He seems to think that the seekers after fame are viciously speculating in futures! So far as we are concerned, the "lotteries-and-other-forms-of-gambling" line of argument closes the controversy.

THE OUTLOOK OF ARCHITECTURE.*

BY REGINALD BLOMFIELD, A.R.A., P.R.I.B.A.

IN an address which I had the honour of giving in this room on a recent occasion, I reviewed in a very cursory way the ups and downs of architecture in this country during the last hundred years. I brought my survey down to the rise and gradual failure of the Gothic Revival. To complete the main outlines of the picture, it is only necessary to remind you of the reappearance of Classic, and its gradual consolidation within the last twenty years. At the moment of its triumph, Neo-Gothic was already undermined by the rhetoric of its advocates, and even by the adventurous spirit of some who had been trained in the strictest sect of the Pharisees. It is now many years since raiding expeditions into the territory of the Renaissance were made by Devey, Nesfield, and Norman Shaw; and these have been followed up by a systematic study of Classical architecture which has resulted in the recapture of some at least of the scholarship of the art. Undoubtedly interest in architecture is more widespread than it was, and our literary friends are well to the front, telling us of our failures, what we ought to do and how to do it. Experienced architects are not very likely to be turned from the course they have set themselves by criticism and clamour, but the rising generation may feel some doubt and perplexity, and I think the time has come to take stock of the situation so far as it is possible to do so.

The Condition of Contemporary Art.

It is not an easy thing to do, and I must ask for your tolerance if I seem to you to misread the signs of the times. It is difficult to appreciate contemporary art with any certainty. One cannot get far enough back from it to place its features in right perspective. The tendencies that result in history do not lie on the surface, and what appears to be a new light may be only the will-o'-the-wisp of a passing fashion. Moreover, the problem of architecture is very complex; and as the power of literary expression is seldom in ratio to technical knowledge and ability, our guides and critics may possibly misapprehend the situation, and leave unnoticed those strong impulses in artists themselves which must be the foundation of any real progress in the future. Our critics do not always grasp the continuity of architecture, and its solid basis in facts, and, I believe, it is this omission which explains their hankerings after new styles and their clamour for originality, no matter whether it is good, bad, or indifferent. For some generations art criticism has suffered from a certain feverish impatience, which has blinded it not only to the intimate and necessary connection of the architecture of to-day with that of the past, but also to the germs of future development, latent in that contemporary art which it is the common practice to minimise and disparage. It is only a few years back since critics, whose training should have given them more insight, complained of a lack of initiative in those who through good report and evil steadily pursued our national tradition of Classic architecture. Time has justified those men, and a very few years have shown the practical certainty of disaster that waits upon jumps into space.

Mr. March Phillipps and Architecture.

That point of view has been dropped by serious critics, and our professional writers are too well informed to believe in the value or even possibility of any violent cataclysm in architecture, such as that now being attempted by the Futurists and the Cubists in painting and sculpture. We, at any rate, know that architecture is too serious an art to pay any attention to quack remedies. Meanwhile, architecture, or, perhaps, I should say architects, are attacked from another

quarter, and the attack, I do not know whether consciously or not, is a repetition of the polemic of the Neo-Gothic enthusiasts of the 'seventies. A clever writer in the "Morning Post" has drawn a charming picture of those glorious days when Gothic architecture was run entirely by the Guilds: when the workman was unchecked by the architect and his T-square, working has own sweet will as a free and glorious artist; when the building craft was the greatest in the world, and the Guilds were its embodiment, storehouses of knowledge, "the vat," if I may quote his words, "into which the experience of all ran." The master masons, he asserts, were "cultured men, the associates of princes and scholars; they built with extraordinary audacity and imaginative resources." We are now told that architecture has lost this fount of inspiration, and we are bidden to throw over our scholarship, our draughtsmanship, our powers of design, our trained technical ability, and watch the "felicity of action and latent understanding" with which "a mason tosses and turns a brick." (I may mention in passing that the Bricklayers' Union would very soon be on his back if he did!) The writer, Mr. March Phillipps, is so haunted by the idea of an architect that he goes so far as to say that he never met a man, other than an architect, who had a good word to say for the architecture which ranges from the reign of James I. to that of George V. I think he must have forgotten Greenwich Hospital and Hampton Court, St. Paul's Cathedral and Somerset House; and without desiring to enter into controversy one is compelled to question the historic accuracy of Mr. Phillipps's charming idyll. I seem to detect the trace of an ingenious theory which a few years ago was spun round an obscure association known as the Comacine Masters. Were the Guilds the last refuge of the building art? the high-minded guardians of all that was noble and beautiful in architecture, thrust out of place by an arrogant intellectualism? Were they not, in fact, so hopelessly corrupt in their latter days that the "adverse legislation," as Mr. Phillipps calls it, became an absolute necessity of intelligent government? I would ask also, were the mediæval workmen the consummate masters of the building art that our critics would have us believe? Is it not also an historical fact that many of them built extremely badly, that church towers of the fifteenth century have simply collapsed in France, that some of their most ambitious ventures in construction, as at Beauvais, failed almost at once, and had to be precariously maintained by a network of iron bars? Those who have had the handling of old buildings have had it driven into them again and again that the average building of the Middle Ages was inferior rather than not. I am talking simply of building, not in any way of design, and details of ornament, and I say deliberately that at the beginning of the sixteenth century most of the master-builders were bad builders; and if our critic has any doubt on the matter, I would remind him of what happened in France in the reign of François I., and of the contemporary evidence of Philibert de l'Orme on the master-builders of his time.

Gothic and Classic.

Our critic imagines a divorce between the modern architect and his workmen that does not exist. "Labour," by which is meant the skilled labour of the building trades, is not in "the state of helpless ineptitude and dull impotence" which Mr. Phillipps supposes. The architect is not a truculent and arbitrary tyrant, any more than the workman is a heaven-born but down-trodden artist. They are both, let us say, honest men trying to do their allotted work, and some of them do it exceedingly well. All good architects value a good workman; the unsympathetic attitude of

* Presidentia' Address to the R.I.B.A., delivered Monday, November 3rd

architects is wholly imaginary, and the phrase "the untravelling workman" which Mr. Phillipps imputes to me, was, if I recollect aright, the invention of a somewhat intemperate champion of the Art-master, and I am not conscious of ever having used it at all. Mr. Phillipps makes a distinction between "creative construction" and "imitative construction"; the first he identifies with Gothic architecture, the second with Classic. Surely this begs the whole question; this distinction, which is to be the key to the architecture of the future, is only a repetition of the outcries of Ruskin. Nobody, no practising artist at any rate, ever thought about such things before his time. The idea is of purely literary origin, it has no justification in history; on the contrary, it makes the serious error of overlooking the work of tradition in both mediæval and Classical architecture, that slow and almost unconscious moulding of architectural forms from generation to generation. It is an idea that has arisen from the habit of regarding the details of architecture as architecture itself, of concentrating attention on words rather than on language. Nor, as a student of the history of architecture is one in the least disposed to accept the assertion that the architect is the *fons et origo malorum* in architecture, and that he is so by reason of his trained ability, for that is what the charge amounts to. The more closely one studies certain contemporary criticism of the arts, the more convinced one is that it is inspired by the dictum of the celebrated "Capability Brown," that "knowledge hampers originality." Mr. Phillipps says that in mediæval building there was not "a sign of a dictate, automatically delivered and passively accepted," but he has himself to admit that in more "important operations" the work would be "supervised by some craftsman of more than local repute." Indeed, unless human nature was different in kind in mediæval times from what it has been both before and since, building operations could only have resulted in Towers of Babel, unless there was somebody in control whose dictates were both delivered and accepted. That he was not equipped as a modern architect we are all agreed, but that he was a person of superior knowledge in control of the workmen is also certain, and this knocks on the head the engaging theory of the workman and his own sweet will.

The British Workman as Architect.

We have to get back to the facts, and I have dealt at some length with this criticism of modern architecture, because Mr. March Phillipps writes so well that some danger to the right understanding of the art lurks in his well-turned sentences. The views that he advances are, I think, off the track of history. No serious advance is to be made by turning our back on the immediate past, or blinking the facts of the present and trying to jump the centuries. This idea that the hope of architecture lies in the untrammelled (not untravelling) genius of the British workman is the merest *ignis fatuus*. Anyone who has first-hand acquaintance with the condition of modern building, with the methods of modern construction, with the qualifications of the modern builder and the temper of the modern employer, knows that the suggestions of our critics are impossible in practice, and that even if they were possible the result would probably be an exaggerated version of the efforts of the speculative builder. The man of genius who first made popular this delightful dream of mediæval art had the excellent sense to call his message "News from Nowhere." Morris's theory of architecture was just the expression of his own temperament, and the logical corollary of his personal conception of architecture as the drudge and vehicle of decoration on the one hand, and of practical necessity on the other. This view is constantly reappearing in modern criticism, but I would remind our critics that architecture is the greatest of the plastic arts, and that it is not its function to sit at the feet either of the ornamentalist or of the engineer.

I do not think that architects were seriously alarmed as to the future of their art. They will agree heartily with Mr. Phillipps in his search for simplicity and sincerity of statement. Where they will entirely decline to follow him is in his subordination of architecture to the ignorance and incompetence of "average labour" —(the phrase is Mr. Phillipps's, not mine).

So far I have endeavoured to put before you what I may call external criticisms of architecture. We cannot entirely disregard them because they are widely read by the general public, and as they are usually stated in excellent English, they may have a far-reaching and unfortunate influence, against which we have to be constantly on our guard. The difficulties in which the art was landed by the unbalanced eloquence of a great writer in the last century are a matter of common knowledge.

Now let us consider the art from our own point of view. Anyone who has studied history knows how slow and gradual has been the growth of architecture, by centuries in mediæval times, by half-centuries from the dawn of the Renaissance down to the end of the eighteenth century. These advances, too, have been made not by deliberate intention, but almost on compulsion, in order to meet the changing needs of a constantly expanding civilisation. Looking back on the past we can trace the successive steps, we can show the development of construction and the gradual perfecting of technique, and we can follow more obscurely the trend of artistic thought, the gradual consolidation of those impulses which lie at the back of vital movement in the arts. The road is unbroken—where we miss it, there is no hiatus in fact, but only in our knowledge of the facts, and if there is one thing more certain in history than another, it is that of all the arts architecture is the most steady and consistent mover. The idea of the Futurists that architecture will advance by being turned upside down is not worth the consideration of serious students.

Architecture a Practical Art.

On the other hand, the arts do not stand still, architecture least of all, because it is essentially a practical art. Fresh problems present themselves in planning, provision has to be made for the ever-widening range of applied mechanical science, new methods of construction have to be considered, the practice of architecture becomes more difficult every year, and the modern architect has to deal with a range of subjects which would have paralysed his grandfather. The question we have to consider is how far these changed conditions are likely to affect design, and how we architects should set our course if we do not wish to drift on to the quicksands of futile experiment. It has sometimes been suggested that the future of architecture lies in a resolute rejection of all the accepted forms of architectural expression. What we are to do after this I am not quite clear, because some of our critics tell us that we should leave our steelwork and reinforced concrete just as it is, and others want us to spin new forms out of our inner consciousness. Our critics are so dreadfully impatient, architects may well say, like the unfortunate debtor, "Have patience with me and I will pay thee all." But that is just what we are not allowed to do, because our public is never quite sure whether we are the enemy of society, or the *deus ex machina* who can resolve every conceivable difficulty. The past fifty years has seen some desperate endeavours to invent something new, experiments in various styles in the past, and experiments in what is fondly believed to have no relation to the past. I think it is time we gave up these conscious and artificial attempts at originality, and let it find itself. Where our critics go wrong is in demanding a new language when they ought to be demanding new ideas. The old language will do very well if we are masters of it and have the brains to use it to the full.

Meanwhile history has been making itself, and

making itself in a rather curious way. If we go back to the last quarter of the nineteenth century, we find that the orthodox Classic of the older school had dwindled away to dulness and decrepitude, the Gothic revivalists had broken loose in all directions and afterwards lost their clue, having condensed into some thirty years all the variations of an art that had taken five centuries to run its course. The more original among these men had for years been feeling their way out with tentative excursions into the Renaissance: Nesfield at Kimmell, Devey in many a picturesque country house, Norman Shaw, who, with all his genius in design, reached his Classic too late in his career; and close on the heels of these came men who I am glad to say are still with us, and who won their spurs when some of us were still in our articles.

The Spirit of Neo-Classic.

Meanwhile a generation has grown up no longer content with odds and ends of detail, however picturesque, but anxious to get to the heart of things, and to grasp the informing spirit of Neo-Classic architecture. The technique of the art in its widest sense, not only in the nuances of detail, but in the larger aspects of planning and composition, rhythm, and proportion, has received in recent years a study and attention such as had not been given to it since the days of Cockerell, and we have now before us versions of Neo-Classic which deserve to be taken seriously; and out of which, I believe, may ultimately develop that standard manner which is essential to the appearance of any such vernacular art as existed in civilised Europe in the first half of the eighteenth century. I think all close observers of modern architecture will admit this real advance, and this gradual *rapprochement*, as I have to call it, of the ablest designers that we have. It exists so far in a common point of view rather than in an identical manner; because we have varying versions of Classic all worth taking seriously—the attempt to pick up the thread of Cockerell's tradition—a possibly somewhat dangerous leaning towards the fashion of our colleagues in France—and the more sober manner based on our own Classic of the earlier part of the eighteenth century. That any one of these should sweep the field entirely is neither to be expected nor to be desired. Such a result would be alien to the genius of our race for individualism, and its robust dislike of pedantry.

Nor would it be a complete synthesis of all the factors in the case, for ecclesiastical architecture has yet to be taken into account. Our English clergy still cling to Pugin's totally unhistorical claim that Gothic is the only possible form of religious architecture, and, Classical churches being ruled out of court, our architects have to persevere with Neo-Gothic. Let me say at once that some of them design in it with great ability, and that, so far as my observation goes, the architects of this country are the only ones who have got within range of the subtle and elusive spirit of mediæval art, so far as it is possible for any one to do so. Then, too, there is that Byzantine strain which found such wonderful expression in Bentley's church at Westminster. Its influence is less marked than it was, but it has been a valuable factor in the advance of architecture, because in its austerity and reserve, in its feeling for surface ornament and the value of abstract form, it is akin in spirit to the purer forms of Classic art. All these elements the wise artist has to note, and, in spite of their different idioms, he may find a certain bond of kinship in their constant effort after simplicity of statement, and even the most ardent Classicist may learn a lesson from the elasticity and resourcefulness of Gothic.

Let me say at once that I am not advocating the eclecticism that has done duty for design in the past. Every artist has to find his own personal method of expression, but the wider and deeper his range of study, the more flexible and the more assured will be

his art. Craftsmanship in the sense of the dexterity of hand acquired by specialised work in one direction and on one material, is an admirable thing, but it is not architecture, nor does it represent the aim and ideal of an architect in regard to his art.

Hope in New Conditions of Building.

The only effective source of development in architectural form must be new conditions of building, and this will be very different from that new and original style for which our critics hanker. The fashion of ornament may change, but the problem of architecture does not lie with ornament, and the epoch-making discoveries in the art have arisen from practical necessities handled in the most direct and even uncompromising manner. Witness the Colosseum and the dome of the Pantheon. The designers of these great buildings did not trouble their heads about inventing fresh detail; what they found to hand was good enough for them. Where the Roman architect was so great, greater even than the Greek, was in the masterly handling of a great conception, in that power of bringing the mind to play on the actual facts. The American skyscraper is also an example of a new form arising from new necessities, though the solutions have not always been happy, because the essential elements of tower design have been forgotten. It comes, I think, to this, that, although new architectural forms in the sense of new outlines, new groups and masses will naturally develop out of the changing problems of civilisation, no necessity arises for anxious effort to change the ordinary vocabulary of architecture. Perhaps of all futile experiments in originality the competition for a new French order to glorify Louis XIV. was the most gratuitous and the most ridiculous.

The question still remains how we are to deal with inventions such as reinforced concrete when used for the exteriors of buildings. Are we to adhere to the shibboleth of the Gothic Revival, and show our construction naked and unashamed, and are we to suppose that our æsthetic sense will alter so materially that we shall presently find pleasure in ranges of openings supported and separated by the thinnest piers to which the engineer can reduce our points of support? What may happen to our æsthetic sense in the future no one can say in view of the chronic assaults made on the sanity of the public. The only evidence is what has happened in the past, and that evidence shows that though from time to time there have been eccentric aberrations, the orbit of taste has ranged between fairly determinable points, and those points have not included such skeleton building as is of the essence of reinforced concrete construction. If, as I incline to think, our dislike of it springs from some deeper instinct than mere unwillingness to change, we must reserve our freedom to use inventions such as reinforced concrete as mere instruments of building in the same manner as we use steel construction, or as the Romans used their system of brick ribs and arches. I see no reason why, in dealing with this and similar methods, we should not avail ourselves of all the weapons in our armoury, translating our construction into such forms as will best express the central conception of our design. In other words, we are not compelled to subordinate our design to the instruments we employ. There is always a touch of the aristocrat about the mistress Art.

Tradition versus Eclecticism.

What conclusion is to be drawn from the considerations I have endeavoured to put before you? What is it we should aim at, and how far are we likely to realise our aims? We have to accept the fact that we are at the end of 150 years of eclecticism. The last genuine tradition died with Chambers. His successors carried on his manner, but other elements had come into play, the Romantic movement on the one hand, and the age of archæology on the other. Architecture, most unfortunately, came within the literary net, and it has

not yet escaped it. Hitherto—that is, till the latter part of the eighteenth century—architects had studied old work assiduously, but it was with the object of perfecting their technique. The archæologists have worked with quite different objects, and though they have done invaluable work in extending and correcting our knowledge of the past, their labours have had the curious result of placing architecture on the wrong issue, and of reducing architects from time to time to a state bordering on imbecility from the very profusion of the details at their disposal; a fact that will need attention in the conduct of the new British School at Rome. From this state of things I think we are emerging; the limits and the relation to each other of architecture and archæology are becoming clearer, and the conviction has been steadily growing in the mind of architects that details are but the outside of the cup and platter, and that their value is conditional on the use that is made of them. This is the first step towards the reorganisation of architecture and its recovery from the chaos of the nineteenth century.

We cannot escape the difficulty of modern architecture, that we are offered too wide a choice, that there are too many wells to draw from in the interminable issues of photographs and illustrations, and also that there are too many fashions set by irresponsible people. The temptation to yield should be met if our architecture is to be robust; and the way to meet it is to shape differently at the problem of design, to search for the idea, and let the form develop out of it. A master idea carries with it its own expression, and to a mind well stored with the language of architecture, the form follows the idea so closely as to be almost inseparable from it.

I am not going to attempt any prophecy as to the future of architecture in this country. My own view is that genuine progress is likely to be made only along lines already laid down, by the skilful use of opportunities as they occur in plan and construction, and by the watchful care of all elements in design that pull the same way, namely in the direction of strength, refinement, and sincerity of statement. Our French colleagues, I am told, deprecate our ventures in monumental Classic, and would urge us to follow the models of Late Gothic or even of Jacobean architecture. I can only suppose that these gentlemen are unacquainted with the work of Wren and Vanbrugh, Hawksmoor, Gibbs, and Chambers. In the work of all these men there is latent a tradition, still unexhausted, still capable of development and application to the problems of modern architecture; and this question of tradition is of the first importance. We ourselves are, I believe, slowly moving towards the only possible standpoint in gradually concentrating on the tradition of English architecture of the eighteenth century, and our French critics seem to me to have shown little wisdom in deserting the splendid legacy of Gabriel. What can be done by working on the lines of national architecture has been shown in some of the buildings of that accomplished architect Ludwig Hoffmann, of Berlin; perhaps a little over-accentuated, a little over-strenuous, but, as far as I understand it, stamped with the genuine impress of the traditional architecture of the German States.

A Plain Policy.

Our course then is clear. We are not to be rushed by the outcries of our critics, or moved to hurry by frantic attacks on architects, made sometimes for reasons quite unconnected with architecture. We should pursue our steady way, strong in our knowledge of the past and in our faith in the future, and in that enthusiasm which is the privilege of creative artists. For this kinship of artists should be the real bond of union between architects, the source of that honourable fellowship, without which individual efforts must too often fail. And in concluding my remarks I would urge the value, and indeed the necessity, of this *esprit*

de corps. The career of an architect is by no means an easy one. Unforeseen difficulties may arise in his way, and he may need that helping hand which, I hope, will never be refused by his colleagues. In all such cases we should stand by our brethren. Moreover, there are intricate and difficult questions to be determined by the profession in the near future, one in particular which has blocked the way for a generation and which has for years received the anxious consideration of successive Councils of this Institute. I have every hope that at a near date your Council will be in a position to offer you its considered suggestions for the solution of that question. I will only remind you that such questions can only be settled by pulling together. You will recollect Æsop's fable of the bundle of sticks. It is not to be supposed that any method can be devised which will be wholly acceptable to everybody. But when the solution to which I refer is suggested to you, I feel sure that this *esprit de corps* will have the full scope and bearing that it should have in a great profession such as ours, and that we shall not trust in vain to this same honourable sense of fellowship.

STYLE AND THE MODERN SPIRIT.

A CORRESPONDENT of the "Manchester Guardian" had been supposed to "take up anew the plea for a Gothic style of architecture in Manchester," and Mr. J. Hubert Worthington and Mr. A. C. Dickie, Director of the Manchester School of Architecture, have replied to him in that sense; but he has since explained that he was not advocating the adoption of Gothic for Manchester.

Mr. Worthington writes: "Is not our modern world far more akin to ancient Rome, with its Imperial Fora, and the great unbroken floor space of its exchanges and public bathing establishments, that are the outcome of the law, common-sense, and forethought which characterise that great civilisation? Surely we have most to learn about architectural civics from Rome and the connecting link which unites Rome to us, the Renaissance, of which we really form a part. The Renaissance is not a mere art subdivision; it is an attitude towards life. It stands for modernism, for light, air, space, and freedom of thought. It is true that there is the same danger of slavishly copying Classic detail, and missing the underlying spirit, that befel the Gothic revivalists, but it is the broad simplicity, the dignified proportions, and practical common-sense in the architecture of Rome that our city stands in need of."

"Modern Paris and Vienna and the great German cities illustrate the present-day interpretation of Classic ideals. The great railway stations, public libraries, and banks of America are grounded on the same principles."

With respect to architectural education, Mr. Dickie holds that the real question is: What precedent can best help us to cultivate that sense of building propriety which is essential to the solution of our modern building problems? He thinks that Mr. Worthington makes out a good case in favour of the adoption of a Classic spirit in the designs of our city buildings, but Mr. Dickie asks, "Might it be termed, more broadly, a Horizontal spirit? Space and light, as well as the expansion and dignity of our busy life, can best be expressed by Horizontal treatment. The 'expanses of glazing which the Mediævalists contrived in their churches' cannot be applied truthfully to our storied business palaces, any more than the halved and planted order of a Classic peristyle. The Horizontal spirit is faithful to the steel and ferro-concrete construction so abundantly in practice, now developed and ready for our use. Besides this type of construction there is still a vast amount of construction in ordinary brick and stone to which the purely Classic spirit more directly applies."

THE PLATES.

West Front of Buckingham Palace.

THOUGH in a general sense one of the most familiar buildings, in reality Buckingham Palace enshrines work which is practically unknown to the general public, and even its exterior elevations, excepting that on the east side, facing the Mall, are unfamiliar. It is of much interest therefore to illustrate, as we do this week, the garden front, more especially as the completion of the new east front, to the design of Sir Aston Webb, is now a matter of keen public interest. As is well known, the building was not erected as a palace from the commencement, but was made into one from old Buckingham House, which had been erected in the eighteenth century. The work of converting this into a house for the King was commenced in the reign of George IV., under the direction of John Nash, and continued until the time of William IV., who, however, never lived in the building, as it did not conform to his ideas of comfort and good appearance. John Nash was an architect of varying merit, but he generally succeeded in giving an air of dignity to his conceptions, and in this west front of Buckingham Palace he achieved a very noteworthy result. There is a fine massed effect of the several parts, the treatment of the centre block with its semi-circular projection being particularly commendable. Other hands than Nash's were at work on the exterior and the interior of the palace during the nineteenth century. Thus, Blore set up the east front, while Pennethorne added the ball-room on the south side of the building. We do not know whether the long sculptured panels which embellish the garden front form part of Nash's original design or not. They seem rather to be reminiscent of Pennethorne, but, whoever designed them, they are a relief to the façade, which is rather severe in its general lines. The view which we publish, taken from the north-west side, makes the façade smaller in comparison with the detached building at the end of the Terrace than it appears in reality, but the intervention of a large tree on the lawn prevents any other complete view being obtained. The photograph was taken by Mr. H. N. King.

Semi-detached Houses, Cambridge.

These houses are situated in Chaucer Road, Cambridge. The oblong plan was adopted in order to obtain as large a floor area as possible under a single roof. Luton brown and purple bricks are used up to the level of the first floor, and local stocks, cement-rendered and rough-cast, from the first floor to the roof. The roofs are covered with local tiles, some old tiles being mixed in with the new. In one of these houses the dressing-room over the scullery was constructed so as to form an open-air shelter approached from the day nursery. Mr. T. H. Lyon, of Islington, South Devon, and London, was the architect, and Messrs. Coulson and Lofts, of Cambridge, were the builders.

Council Chamber, University College of North Wales, Bangor.

The University College of North Wales, erected at Bangor from the designs of Mr. Henry T. Hare, F.R.I.B.A., occupies a fine site on an eminence above the town. There are several imposing rooms in the building, including the council chamber, which we illustrate this week. This apartment has a barrel ceiling enriched with fibrous plaster work, inset with shields in colour, and is panelled throughout in oak. There is a carved stone chimneypiece at one end.

Detail of Entrance, No. 226, Rue de Rivoli, Paris.

The photograph which we reproduce shows the entrance to some flats in the Rue de Rivoli, Paris. It comes under the well-known arcade and is adjacent to

the Hotel Meurice, by M. Nénot. We have not been able to determine who was the architect. The doors are of iron with bronze enrichments, the latter being executed with that perfection of finish which it is usual to associate with French craftsmen. Within the vestibule the stone carving follows the same motifs as are used for the enrichment of the doorway. Altogether, it is a good example of modern French work.

Neo-Grec Detail.

Continuing our series of photographs of details from the Palais de Justice, Paris, we give this week a group of ornaments. On previous occasions we have commented on the individual character of Duc's design, and we need not now repeat what has already been said. The merit of the work is obvious. It is full of suggestion for architects to-day, and on that account the plate should be found a very useful one.

Shop Front, Giltspur Street, London.

This shop front does not come within the same class as those needed for the businesses which demand a large and unobstructed glass area, but it is one which is eminently adapted to such a business as Messrs. Baker's, wholesale dealers in printed fabrics. The effect aimed at by the architect, Mr. E. Greenop, F.R.I.B.A., was that of a quiet design making a compromise between artistic and commercial requirements. The front is carried out in Austrian oak, the upper lights of the windows being filled with leadwork of very pleasing design. The work was executed by Mr. William Downs.

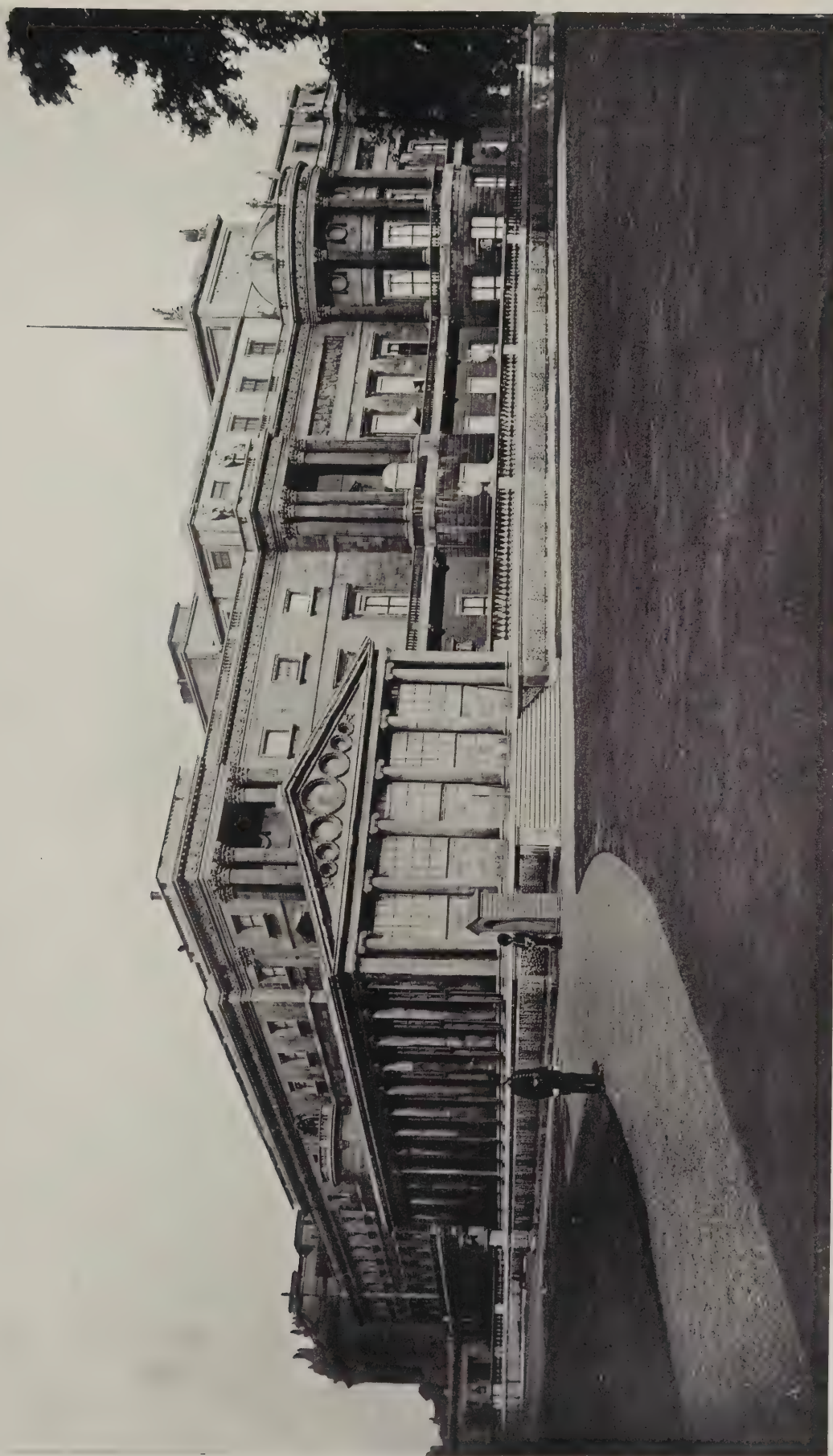
Georgian Interior Decoration.

The fine detail drawing which we publish this week shows to a large scale the enrichment of the chimneypiece from a house in Carey Street (now in the Victoria and Albert Museum) of which we published an elevational drawing in our issue for October 22nd. Particulars of this fine example of an English eighteenth-century chimneypiece will be found on page 387 of that issue, but as relating especially to the enrichment now illustrated we may extract the following sentences: "The woodwork has been carefully freed from numerous coats of paint, and is thus brought to a condition almost resembling polished box-wood, so that every dexterous finishing cut of the accomplished carver's chisel is perfectly apparent; brilliant, vigorous, and withal sensitive workmanship it is, displaying a perfection of draughtsmanship and technique, united with sound, orthodox, traditional design, both in general composition and in the running ornamental motifs."

FREE PORTFOLIOS FOR PLATES.

WE announced last week that we had prepared a portfolio of suitable size to take the plates published week by week in this Journal, and that one of these would be sent to every annual subscriber who applied either personally or by letter for it. The response received to this announcement has been most gratifying, but at the same time somewhat embarrassing. We have been inundated with applications. Readers will understand, we are sure, that without substantially increasing our staff it is impossible to send off hundreds of these portfolios within a few days, and we are therefore dealing with the applications in rotation as they are received. For the convenience of those subscribers who desire to secure the portfolios, special application forms will be sent on receipt of a postcard.

Readers who are not annual subscribers can obtain portfolios at the rate of 1s. each (postage 3d.), and any annual subscriber who wishes to have more than the one portfolio, which is sent free, can also obtain them at the above price.

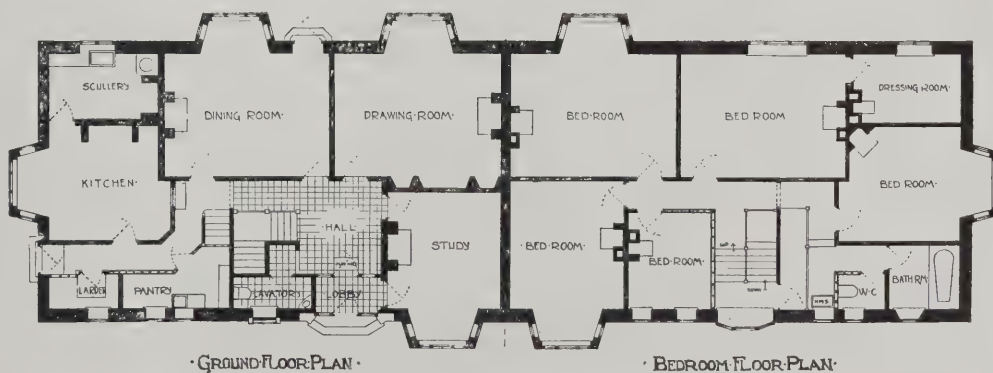


MONUMENTAL ARCHITECTURE. IV.—WEST FRONT OF BUCKINGHAM PALACE.

JOHN NASH, ARCHITECT.



Garden Front.



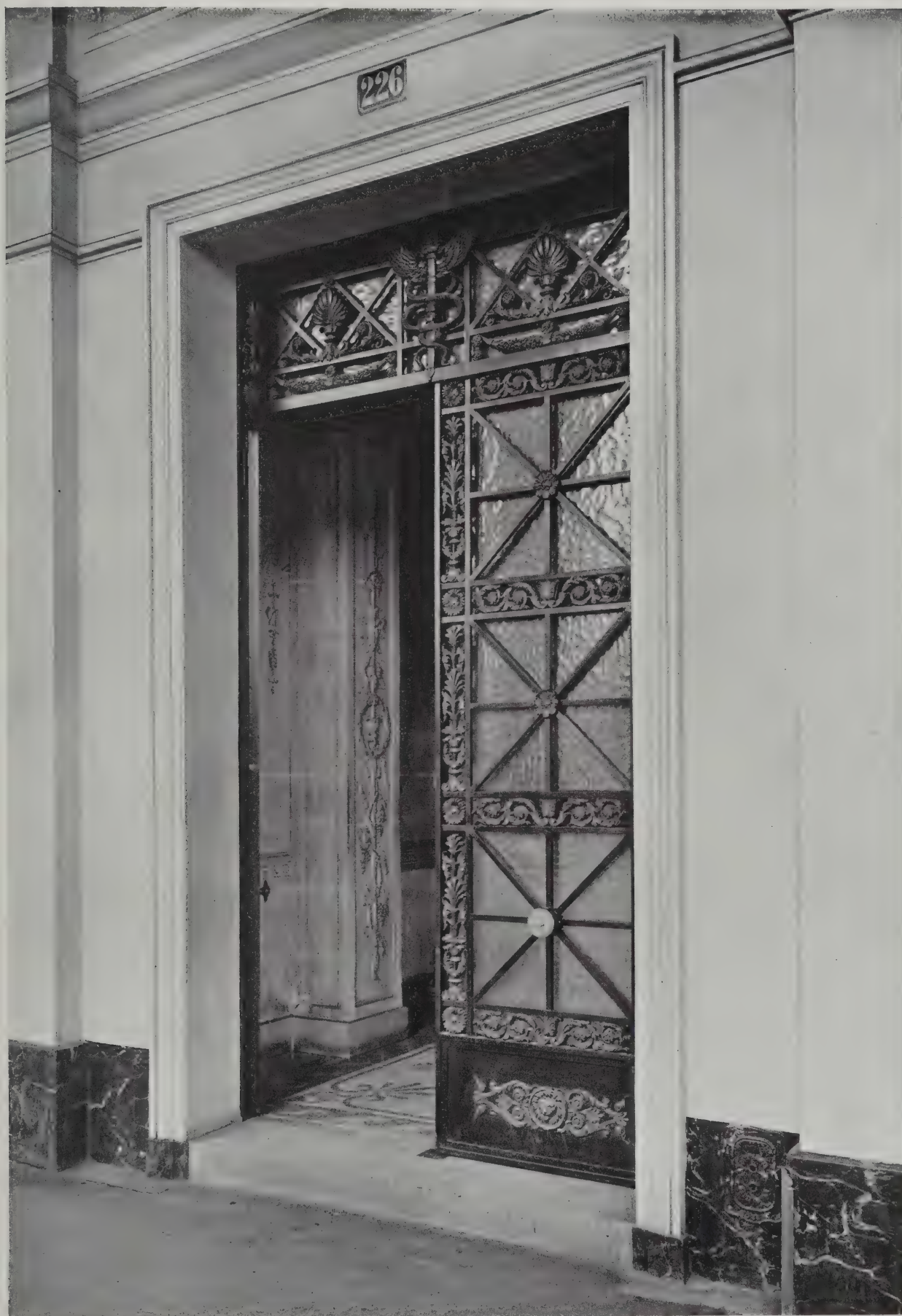
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MODERN DOMESTIC ARCHITECTURE. VI.—SEMI-DETACHED HOUSES, CHAUCER ROAD, CAMBRIDGE.

T. H. LYON, ARCHITECT.



CURRENT ARCHITECTURE. X.—UNIVERSITY COLLEGE OF NORTH WALES, BANGOR: THE COUNCIL CHAMBER.
HENRY T. HARE, F.R.I.B.A., ARCHITECT.

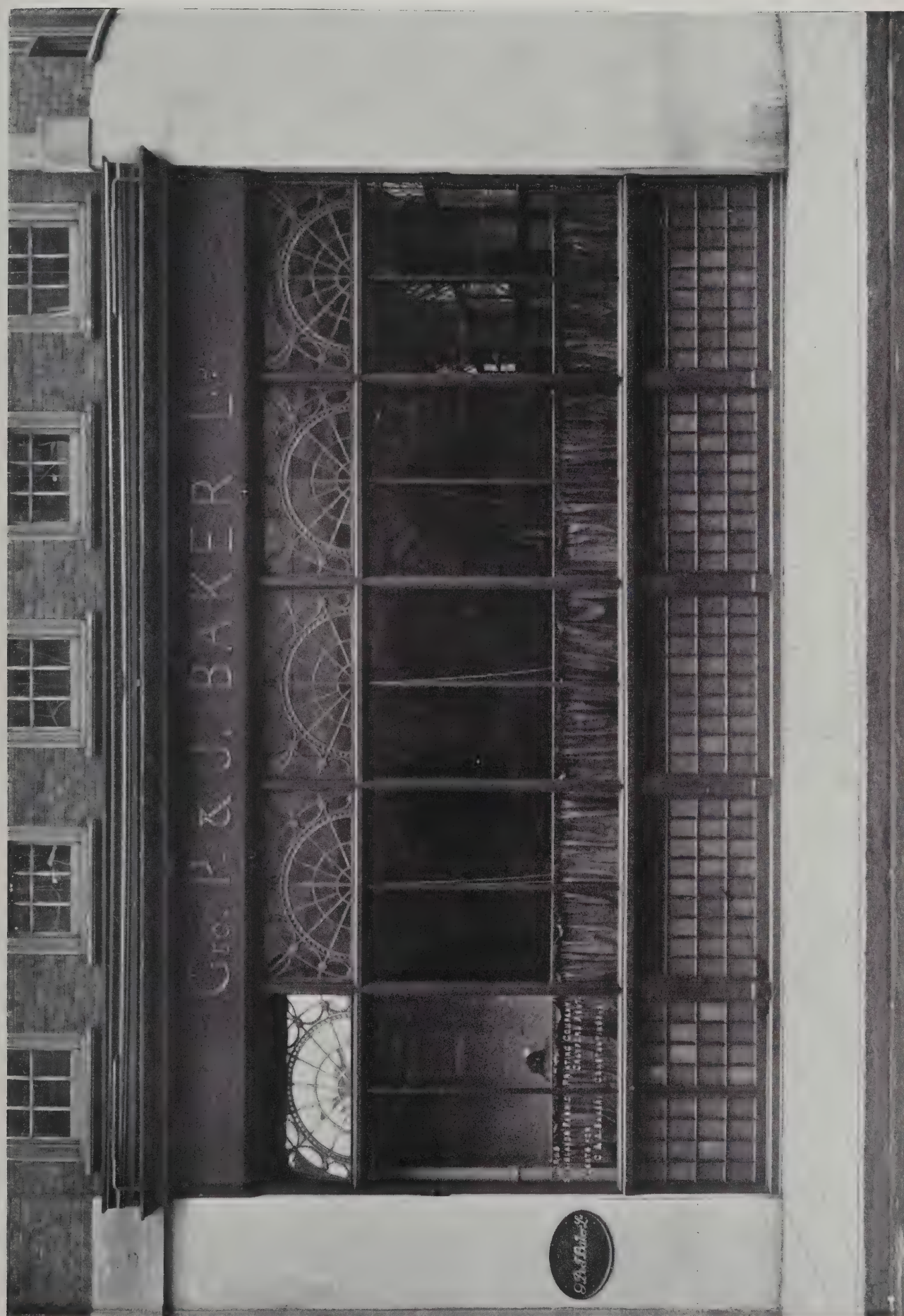


CURRENT ARCHITECTURE. XI.—DETAIL OF ENTRANCE, No. 226, RUE DE RIVOLI, PARIS.



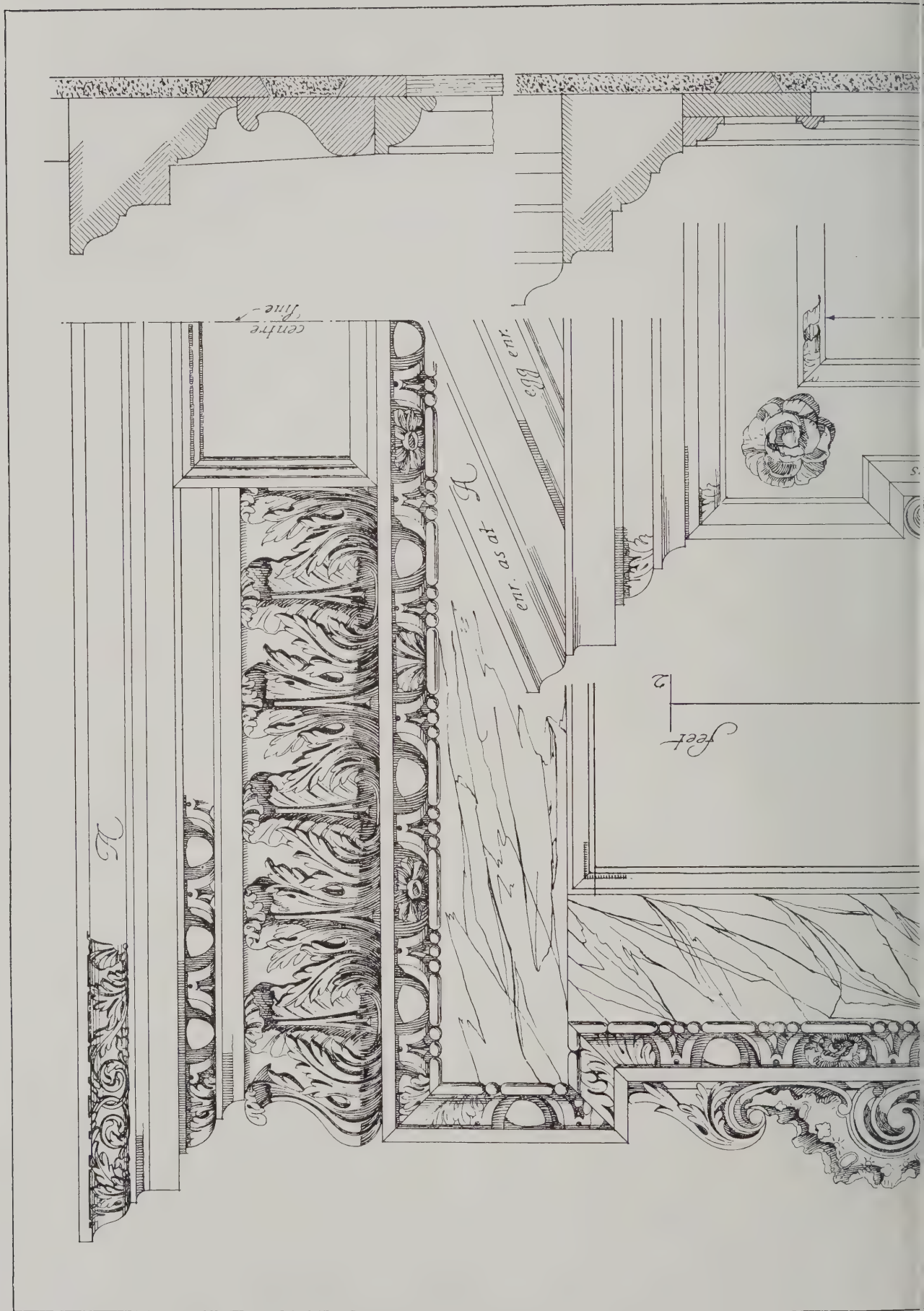
NEO-GREC DETAIL. V.—DETAILS FROM THE PALAIS DE JUSTICE, PARIS.

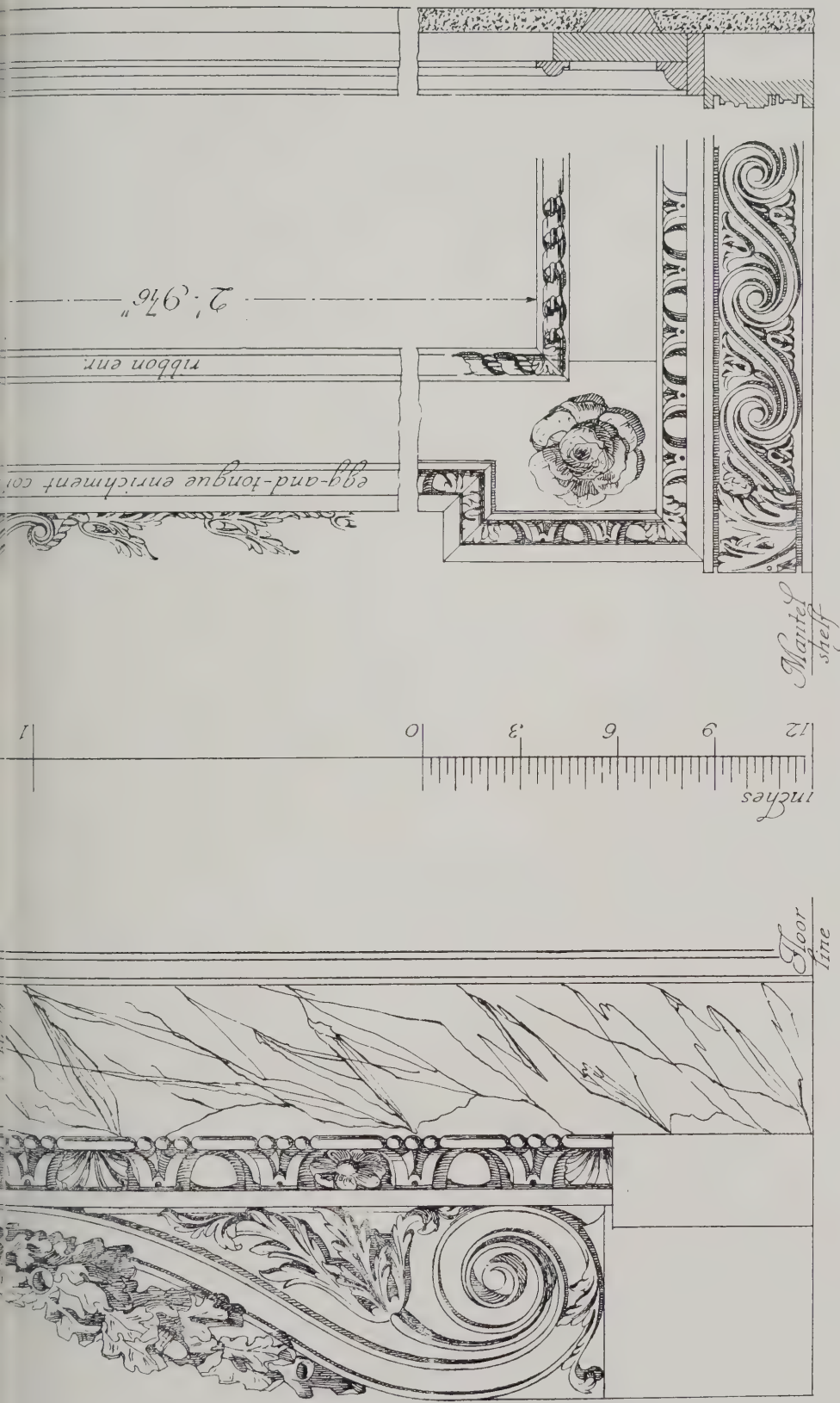
J. L. DUC, ARCHITECT.



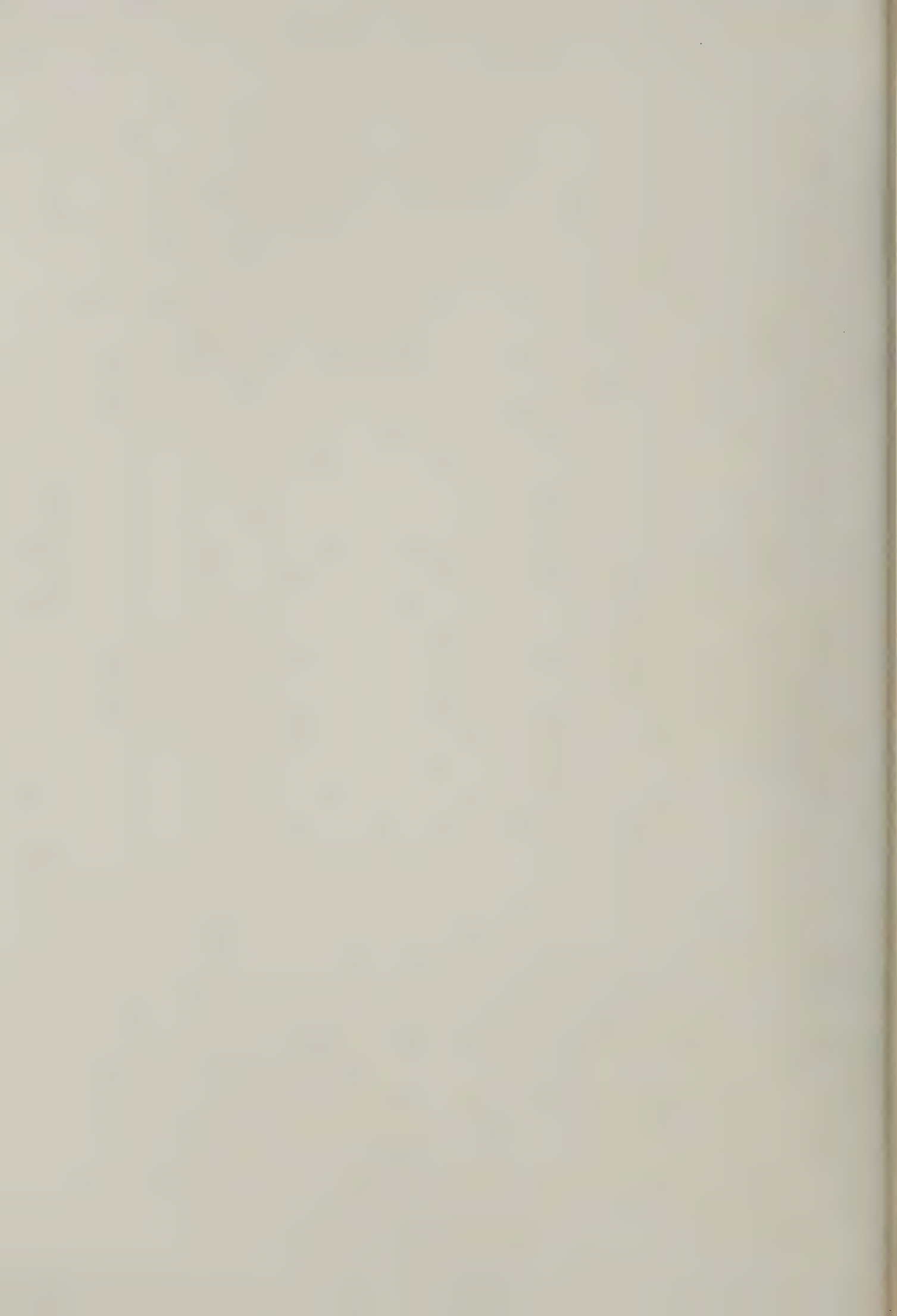
MODERN SHOP FRONTS. VI.—PREMISES IN GILTSPUR STREET, LONDON, E.C.

EDWARD GREENOP, F.R.I.B.A., ARCHITECT.





English 18th cent. CHIMNEYPIECE of carved pine.
 Drawn by Ingleson C. Goodison.



HERE AND THERE.

THE longevity of architects furnishes a topic of some interest. I suppose if we went to one of those gentlemen who make it their business to estimate the expectancy of life among the various classes of workers he would be able to tell us pretty closely how the architect stood in relation to the average span of three-score-and-ten years. In default of information from such a professional source, I have been dipping a little into architectural biography, and working out a few sums with the figures thus obtained. It may not be unprofitable to set down the result.

Those far-away days when Ictinus and Callicrates were devoting their time and thought to the glory that was Greece are far beyond our present scope, nor need we stop to think how Roman conditions affected the architect's length of life. Mediæval times, we may be sure, spelt easy hours for the abbot-builder and his craftsmen, but these can be passed with the rest. With the Renaissance in Italy we may just stay long enough to note that Michael Angelo lived to the good old age of eighty-nine, while Bramante and Peruzzi reached respectively seventy and seventy-five years. But, to our present purpose, all these are "foreigners," so we had best come down at once to the architects of our own land. The record is an interesting one and would seem to suggest that architects, as a body, have had lives of more than average length, which leads one to assume that the strain of professional duties has not been so great as we are apt to suppose in these latter days, when "speeding-up" is regarded as the most excellent achievement.

Inigo Jones reached the age of seventy-nine, while Wren was in his ninety-first year when he fell asleep so quietly in his dining-room chair at Hampton Court: Wren, indeed, seems to have lived longer than any other English architect of note, despite the fact that he had a career full of responsibility and worry. It may perhaps be that all men of exceptional ability stand a fairly good chance of living to an old age by reason of the vitality which is the driving force of their nature.

The record of the eighteenth-century architects well maintains the average. Vanbrugh reached the age of sixty-two, Kent was sixty-four, Gibbs and Flitcroft were both seventy-two. When we enter upon the nineteenth century the tale is very much the same, though there are some cases of extremes. Soane was eighty-four when he died, and Dance the younger the same age. Sir Robert Smirke went further still, reaching the age of eighty-six, in contrast to which we have to note the phenomenally early death of Elmes at thirty-four—a victim of consumption. Cockerell's age was seventy-five.

When we begin to trace the Gothic Revivalists, a rather decided fall in the average becomes apparent, whether or not through any particular nervous effects engendered by their fervid enthusiasm it would be hard to say; but the fact remains that Pugin was only forty when he died, and Street not very much older, his age being fifty-seven, while Sedding was only fifty-four. Sir Gilbert Scott died of heart disease at sixty-seven; Sir Charles Barry was sixty-five. Butterfield had a very long life, reaching eighty-six years. Then, coming right down to our times, we have to note that Brydon was sixty-one, and Norman Shaw reached the age of eighty-one, carrying on the architect's average to a higher level than most of his immediate fore-runners.

Thus, surveying the whole field, it is clear that to become a distinguished architect is a likely way of enjoying a long life. Whether that life should be misdirected in applying orders to civic buildings in a manner that displays a gross lack of knowledge and taste, rather than in spending a happy old age designing smoking-rooms for second-rate liners, is

perhaps a point open for debate. But, at any rate, the actuary seems likely to put a fairly high figure against the architect in his list of averages.

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Mr. St. Loe Strachey has been making things very merry around the cheap cottage. He started with the inexpensive little houses built of chalk in the lump, and then proceeded to show that if only the by-laws would allow it the weather-boarded cottage offered a very happy solution of all the difficulties. His efforts, however, leave us rather cold, the weather-boarded cottage having rather more the appearance of a garden shed than anything we are accustomed to regard as a house. Hence the arrival of Mr. Arnold Mitchell on the scene, and the honour accorded to him of a column description of his cottage in big type in "The Times." Mr. Mitchell's cottage, however, though it may have cost no more than £110, is a very diminutive affair and gives point to the question: "Is a Cottage an Aviary?" His house assumes the existence of a very tiny people; and we find in it that same old plan of a small area covered by a tremendous sloping roof which cuts off the upper-floor bedrooms without mercy. Nor do its cubic contents impress one with the notion that here is the long-sought panacea. After all, there is nothing very new in it; the same sort of thing has been done before, Mr. Mitchell's cottage being simply a dwarfed example of a type which has long since been tried, and, in my opinion, found wanting. It seems to me that it is quite hopeless to expect to build cottages of a reasonable size much under £200. That thousands more cottages will have to be built, no matter where the money comes from, if the countryside is not to be denuded of its labourers, is obvious. In all probability there will be some sort of State subsidy to effect this; but it will be a gigantic error if the accommodation is cut down to such an extent that the rooms scarcely allow people to turn round in them with any degree of comfort. It is all very well to provide a fairly large living-room with a little scullery adjoining, fitted with a wonderfully compact hot-water boiler, and even perhaps to acquiesce in the mistaken feeling that finds expression in a parlour, but it is nothing less than an iniquity to make bedrooms so small and so reduced in cubic contents by the extreme slope of the roof that people cannot sleep in them without endangering their health. The true problem to face is not what is the cheapest cottage that can be built at any cost, but what are the irreducible minima below which no cottage shall be allowed to go. The report of the Departmental Committee of the Board of Agriculture furnishes some figures to this end. It is observed that the minimum size for a living-room should be 15 ft. by 12 ft., and the minimum size for the largest bedroom 12 ft. 6 in. by 12 ft. To merely cut down these sizes and offer the resulting cottage as a model to follow is to ignore the real question at issue.

* * * *

What a sorry figure the architects cut after all that feasting amid festoons of smilax and chrysanthemums, with "an abundant supply of good ale," at the Holborn Restaurant on Friday evening last. Architects, it is true, have sat down to dine annually many a time in that same place, but they have never gone away with Royal presents in their pockets. Yet here are 500 British workmen, good and true, who can frame a King's invitation card, and delight their family circles with His Majesty's pipe and a packet of tobacco emblazoned with the Royal Arms. It was a capital idea, this jousting after the speedy building of the front to Buckingham Palace, and Sir Aston Webb was in his happiest vein when he brought down the house with his emphatic declaration that the British workman was hard to beat.

UBIQUE.

THE CONDITIONS OF BUILDING AND ENGINEERING CONTRACTS.—V.

Being an Explanation of the Clauses of the General Conditions of Specifications and the Legal Decisions affecting them.

SPECIALLY CONTRIBUTED BY E. J. RIMMER, M.Eng., B.Sc., A.M.Inst.C.E., of Lincoln's Inn and the Northern Circuit, Barrister-at-Law, and KENNETH G. THOMAS, B.A., LL.B. (Cantab.).

(Continued from page 395, No. 980.)

Parenthetical numbers in the text refer to cases noted at the end of each section.

CHAPTER III.

QUALITY OF WORK AND MAINTENANCE.

The Clauses which deal with the quality of the work and materials are generally numerous. They include all the provisions of the specific clauses of specifications dealing in detail with the quality and tests of material used in the construction of every part of the work, the manner of executing the work and the examination by the engineer or resident engineer of the work as it progresses. They usually provide that the engineer shall be the sole judge of these matters and they make his certificate of completion and approval final and binding between the parties to the contract but postpone the coming into operation of the acceptance of the work imported by the final certificate of completion until a period of maintenance has expired during which time the Contractor is made liable for defects in, repair of, and maintenance of the work.

The consideration of this subject must necessarily refer to the following clauses of a contract:

- (i.) The specific clauses in the specification above referred to.
- (ii.) The inspection and examination of the work clauses.
- (iii.) The certificate of completion and approval clause.
- (iv.) The defective work, repair, and maintenance clause.

Specific Clauses of the Specification.

These are framed to meet the requirements of the particular work to be done and of the individual engineer engaged. They will describe the manner in which the work is to be constructed and will specify in some detail the tests to which the material must be subjected, or, where no tests are stipulated for, they will describe the quality of material required, and call for samples to be submitted to the engineer. In connection with these clauses it is only necessary to say here that it is unwise to specify too narrowly the mode of performance of the work. In the first place the contractor may have a more up-to-date and a more expedient method of construction, which will give equally good or even better results than those which would be obtained by the method proposed by the engineer, and, in the second place, if the contractor carries out the construction to the strict letter of the specification it may be urged on his behalf that any subsequent failure of or defect in the work is due to an improper specification by the engineer and not to defective workmanship (see *post*). For a similar reason it is unwise that an engineer (except in a few cases) should require a particular brand of material or the product of a particular firm to be used on the work without admitting the claim of any other product "if proved to his satisfaction to be equal in quality and efficiency." An engineer should avoid anything which may be construed as favouritism towards the products of one firm.

Inspection and Examination of Work.

Several clauses in the contract will usually make provision for the inspection

of material and construction by the resident engineer or clerk of works. The object of such inspection is to secure that the material put into the work complies with the tests required by the specification and with the other conditions laid down therein, and that the manner of construction of the work conforms to all the requirements of good engineering. Power will be given to the resident engineer or clerk of works to reject material and require its removal from the site if he is not satisfied as to the quality thereof, or to require the demolition of work already constructed which is not satisfactory to him. In large contracts it is usual to find a clause providing for the employment of such number of workmen, clerks, etc., on the works as the engineer shall deem necessary, and he is generally given the power to order the dismissal of any workman or other person employed who is incompetent or negligent or who misconducts himself in relation to the works.

The powers of the resident engineer or clerk of works are, however, usually subject to appeal to the engineer or architect, whose opinion, after he has brought his skill and judgment to bear upon the matter, will be final and conclusive.

The question may arise as to whether the contractor is entitled to have the period of delay occasioned by the appeal to the engineer added on to the contract time for completion. It is wise to make provision in the contract for this contingency and it is therefore usually agreed that the contractor will be entitled to the additional time if the engineer upholds his claim and reverses the decision of the resident engineer. At the same time it ought to be clearly stated that the contractor will not be entitled to the extra time caused by fruitless appeal to the engineer, for if there were no such provision the contractor would in all cases refuse to accept the decision of a resident engineer, however properly made.

The examination of work by the engineer during the construction is an important matter to be dealt with by the contract. It should be distinctly provided that before any work is covered up or put out of sight the contractors shall send to the engineer and resident engineer "a covering-in" notice, so that the work may be examined (failing which the contractor will be obliged to uncover and re-cover at his own expense when required to do so by the engineer) and that notwithstanding such notice or even the approval of such work by the resident engineer, the engineer may at any time require the contractor to make openings in the work for the purpose of his thorough inspection. If after the work has been opened up the construction is found to be satisfactory the building owner is usually by the contract made liable to pay the cost of such opening up, while if the work is found to be faulty the cost of opening up and repairs will fall upon the contractor.

It should be expressly stated that no expression of approval by the engineer or resident engineer (though appointed by the building owner) will relieve the contractor

from his obligations to repair defective work or to maintain and uphold the work as provided (*infra*). Without this safeguarding clause, it may be contended on behalf of the contractor that the approval of work by an engineer appointed by and agent for the building owner is an acceptance of work on his behalf. On the other hand, where the resident is merely an assistant of the engineer and not the servant of the building owner, no act of his will be binding upon the building owner.

Final Certificate of Completion and Approval.

This is a certificate given by the engineer on the completion of the work to his satisfaction. As it will, in addition to expressing satisfaction, contain a statement of what moneys are then due to the contractor, the matter will be more properly dealt with under the title of "Payment," Chapter V.

Defective Work, Repair, and Maintenance Clause.

The finality of the certificate of completion and approval, as regards acceptance, may be postponed from coming into operation for a definite period (usually called the "maintenance period") by a clause or clauses making the contractor liable for defective work, repair, and maintenance for a specified length of time after completion.

A contract may contain a "defects" clause, a "repair" clause and a "maintenance" clause, but it is more usual in practice that a general maintenance clause is inserted which imposes upon the contractor the obligation to make good defects, and to execute repair and maintain the work in good, sound, perfect, useable, watertight condition for a fixed period after the certificate of completion has been given by the Engineer—generally either six or twelve months. A defects clause alone, providing for the making good of all *defects and omissions* that may appear* in the work before the period has expired only refers to defects due to the default of the contractor. A contract is referred to in Emden's Building Contracts, 1907 Ed., p. 110, in which a clause was contained to the effect that "the contractor must make good at his own cost all omissions and defects that may appear or arise subsequent to the issuing of the final certificate of completion," and it was held by the Supreme Court of the Cape of Good Hope that the clause only referred to omissions and defects due to the default of the contractor and did not amount to a maintaining or repairing clause (25).

It is usual, therefore, to specify more explicitly the defects to which the clause refers and to make provision for the repair and maintenance of all work which by reason of defective work, inclement weather, etc., shall become out of repair. By such a clause the following obligations may be imposed upon the contractor:—

- (i.) To make good defects arising from

*Mr. Hudson in this work on Building Contracts thinks the word "appear" alone is open to objection, as in certain cases defects are hidden. He suggests therefore that the words "arise," "take place," or "become manifest," should be added. H.B.C., Vol. II, p. 509, 3rd edition.

(a) insufficient or improper materials; (b) insufficient or improper workmanship; (c) placing the work upon insecure foundations; (d) weight, pressure, action of water, weather or otherwise; and (ii.) to maintain and uphold the work in a thoroughly perfect condition.

The clause may be framed in such a way that the engineer, acting as sole judge, may determine the question whether the defect is one which the contractor shall be responsible for making good. Thus it may be stated that the contractor shall make good defects (as above) and execute such repairs as the engineer may by notice in writing require him to do, or, that he shall make good all defects which "in the opinion of the engineer" arise from any of the causes set out in the clause (*supra*). It is advisable to include in such clause a provision that if the contractor on receiving an order in writing from the engineer to execute repairs refuses or neglects to carry out such repairs, the building owner may himself have the repairs done at the cost of the contractor.

A very difficult point may arise in the interpretation of this clause. If the work has been rendered unsound by the action of exceptionally severe weather the contractor will by term i. (d) above clearly be *prima facie* liable. It is evident, however, that in most cases it will be open to the contractor to contend that the primary cause of the failure of the work to withstand the inclement weather was due to the defective design of the work or the improper specification of materials used in the work. He may well contend that the engineer or architect in his design did not use a sufficiently high factor of safety or that the particular material which the engineer prescribed to be used in the work was not of sufficient strength for the purpose. Similarly under term i. (c) above the contractor may contend that the insecurity of the foundations was due to the defective design of the engineer or architect, and that he (the contractor) completed and carried out the work in strict conformity with the drawings and specifications and under the close supervision and to the satisfaction of the engineer or architect.

In either of these two cases there would clearly be a direct issue between the contractor and the engineer, and one which could only be settled by the test of outside engineering experience necessitating expert evidence before the law or arbitration court.

It appears to be doubtful whether the court would allow such a question to be settled by the engineer himself, either as sole judge under this clause or as arbitrator under the arbitration clause. There is no reported case determining this exact point, but in one case (26), where the engineer's professional capacity was at stake, and, in addition, there was an alleged personal dispute between the contractor and the engineer, the court refused to refer the matter to arbitration. The judgments are so expressed as to give the impression that the ground of the decision was that the engineer would be in effect "judge of his own cause"; but in a later case (27) that decision was doubted, in so far as the ground of it was stated, though the judges agreed that it might have been arrived at on the ground of the dispute between the engineer and the contractor. In the later case referred to (28) the Court of Appeal considered that a question might properly be referred to arbitration under the contract, even when the circumstances were such as to make it probable that the engineer would be biased on one side or the

other, although no bias was imputed to him by the court.

In a later case, however (28), the Court refused to stay an action brought by the contractors for money due for repairs, the most important ground on which the court arrived at its decision being that the engineer's design was in question, and that he therefore was not the person to decide the matter. It is not out of place, it is submitted, to state that the decisions on this point are to be confined to the particular facts calling forth the decision, but further consideration will be given to the matter in a later article of the series—"Arbitration," Chapter IX.

If, therefore, it is desired to provide for the repair of defective work occasioned by the improper or unskilful design or specification of the engineer or architect, it must be most expressly so stated in unambiguous terms. Such a clause will be most strictly interpreted by the courts against the building owner who has employed the designer. It is not a clause which contractors will readily accept, except under the pressure of serious competition, and in any case where the contractor has doubts as to the capability of the engineer or architect, he will be very unwise to allow such a clause to be inserted in the contract. It would in effect make the contractor the insurer of the design and add considerably to his burden under the contract.

Defects Appearing after Expiration of Period of Maintenance.

When the period of liability for repair and maintenance has finally expired, the contractor's liability under the contract will be terminated, provided that he has done all that has been required of him under the clause.

It appears that nothing short of fraud on the part of the contractor or collusion between the contractor and the engineer will enable the building owner to reopen the contract should it be found after this date that the work is defective. In several cases the building owner has sought to make the contractor liable when, after completion, it has been found that the work is not sound or satisfactory, or is deficient in quantity.

One case (29) goes some way to establish that something in the nature of "scamping" of work or wilful deviation from the contract by the contractor *in his own interests* would be a fraud which in ordinary circumstances would make the contractor liable after the period of maintenance; but, on the other hand, that case and another (30) are distinct authorities for saying that if the work has been carried on throughout under the supervision of a resident engineer (or clerk of works) appointed by the building owner, and if such deviation or scamping could not have been accomplished without his knowledge, the presumption of fraud on the part of the contractor will be rebutted thereby. At the same time there does not appear to be anything in these cases contrary to the view that if the resident engineer had in collusion with a fraudulent contractor sanctioned the fraud the contract might be opened by the building owner and the contractor charged for making good the defects. In one case it was held that such fraudulent collusion did not affect the right of action against the contractor though material to be considered in regard to the question of damages (31).

In view of these cases, the supervision of the resident engineer or clerk of works should be very carefully exercised. Fraud is always a difficult plea to establish, and no amount of negligence in the construc-

tion of the work nor disgraceful workmanship will enable the building owner to call upon the contractor to repair after the period of maintenance has expired. Even where it is expressly provided by the contract that nothing in the final certificate will defeat the rights of the building owner to call upon the contractor to repair, the acceptance of the work by the building owner will act as an expression of satisfaction against himself, which will stop him from afterwards denying that the work was satisfactorily carried out (32).

Cases referred to in the Text:

(25.) *Roux v. Colonial Government* (1901) 18 S. C. Rep. 143.

(26.) *Nuttall v. Manchester Corporation* (1892) 8 T.L.R., 513; 2 H.B.C., 215.—The Corporation's engineer instructed the contractor to remove certain timber from works in course of construction. The contractor objected to do so on the ground that damage would thereby be caused to gas and water pipes and surrounding buildings. The engineer insisted, the timber was withdrawn, and damage of the kind predicted did in fact follow. There was also a personal dispute between the engineer and the contractor. The contractor sued the Corporation for a large sum in addition to the contract amount. *Held*. The Corporation could not succeed on a motion to stay the action on the ground that the matter should go to the engineer as arbitrator under the contract.

(27.) *Eckersley v. Mersey Docks and Harbour Board* (1834) 2 Q.B., 667.—Certain works, other than the contract works but adjoining them, were in progress, and, through negligence, it was alleged by the contractors, water escaped from these works and flooded the contract works. They sued the defendants, and the Court of Appeal refused to reverse the decision of the Court below to stay the action on the ground that the claim was one which ought to have been referred to arbitration under the contract.

(28.) *Findlay v. Wallasey U.D.C.* (Unreported.) (29.) *School Board for London v. Johnson* 2 H.B.C., 180.—The contract contained the following condition: "No final or other certificate shall, under any circumstances, cover or relieve the contractor from his liability for any fraud, default, or wilful deviation from this contract and the works described in the drawings and specification, but he shall remain responsible for four years from the time of the completion of the works for such fraud, etc." It was held that in order to prove a breach of this condition it was necessary to establish that the contractor had wilfully and substantially varied the work in order to benefit himself.

(30.) *Ayr Road Trustees v. Adams* (1883) 11 Ct. of Sess. Cas. (4th series), 236.—The superintendence of the contract work was in the hands of a resident engineer appointed by the trustees who eventually brought an action against the contractor alleging that the work was not according to contract. It was held that the knowledge of their engineer was the knowledge of the trustees, and that payments having been made on certificates issued by the former, the trustees could not re-open the matter.

(31.) *South Eastern Railway Co. v. Warton*, 2 F. & F., 457.—W undertook to construct a tunnel for the Railway Co. but sub-let the brickwork. The engineer was alleged to have certified for work which had not been done. *Held*. That the Railway Co. was entitled to sue W.

(32.) *Bateman v. Thompson*, 2 H.B.C., 23.—The defendant agreed to construct a mansion for the plaintiff to the satisfaction of the latter and his architect who was to certify. It was, however, provided that if bad material or workmanship were discovered in the work within twelve months after the issue of the final certificate by the architect, the building owner could recover therefor. The architect certified, and the building owner expressed his satisfaction. More than twelve months afterwards defects in the work were discovered. *Held*. That the building owner, plaintiff, could not sue for breach of covenant after his expression of satisfaction and the certificate given by the architect, and that the proviso only suspended the conclusiveness of the certificate for twelve months as regards defects.

THE BRITISH SCHOOL AT ROME.

The Council of the R.I.B.A. have awarded the Henry Jarvis Travelling Studentship in Architecture to Mr. Louis de Soissons, student of the Royal Institute, on the recommendation of the Faculty of Architecture of the British School at Rome. Mr. de Soissons is the first winner of this studentship, which is open to Associates and Students of the R.I.B.A. under thirty years of age, and is of the value of £200 per annum, tenable for two years at the British School at Rome. Mr. Louis de Soissons won the Tite Prize of the Royal Institute in 1912.

As noted elsewhere in the present issue, £200 per annum is also the value of the Rome Scholarship in Architecture, awarded to Mr. H. C. Bradshaw.

THOUGHTS ON ARCHITECTURAL DEVELOPMENT.*

BY W. CURTIS GREEN, F.R.I.B.A.

HAVING reviewed the work of the Association during the past session, and having referred to its manifold activities, educational and recreative, Mr. Green said that the allocation of part of the Henry Jarvis bequest to the school by the trustees, at the recommendation of the Royal Institute of British Architects, and the legacy of the late Mr. William Glover, were events that had to be gratefully recorded this year.

Improvement of Premises.

We have made, he continued, several minor improvements to our premises during the session out of the general funds. The Council has for two years been giving consideration to the question of premises, which will become acute with the expiration of part of our lease in two or three years' time. This will give us the opportunity to put our house in order and extend and rearrange the space, which is now insufficient and inconvenient, whether we consider it for school purposes or for our own meetings. The Council has invited Mr. H. Austin Hall, who has already done so much for the Architectural Association, to prepare a scheme for extending and altering the premises.

I might now follow, as a shadow, past-presidents of the Association, and discourse on what an architect should be, what he should know, how the technical knowledge should be gained, and how the artistic qualities necessary to the formation of an architect may be developed. I shall not attempt this; the modern student chooses his own school and goes to the fountain-head of the school for knowledge. Moreover, the facts he has to master may be read in the syllabus of the Board of Architectural Education, printed in the "Kalendar" of the Royal Institute of British Architects. This syllabus embodies the wisdom of a long line of distinguished men and deserves the closest attention; it is a bare statement of the qualifications necessary for the practice of architecture, and is silent on the qualities necessary in the man. It supplies the details, but not the background. It is of this background that I propose to speak, bearing in mind that we are living in the twentieth century—a time of apparent contradictions and unsolved problems.

Nowadays equipment is only a matter of proper guidance and of continuous hard work, and, in the words of Pericles, "Our trust is not in the devices of material equipment, but in our good spirits for battle." A limpet-like tenacity to hold on through disillusion and failure, the courage to face the facts and to use them, combined with that humility of mind which wins the confidences of the Mistress Art, are necessary to those whose destiny it is to serve her; for architecture is not merely an exacting mistress, she is elusive, rejecting sometimes even those having on the wedding garment. "Many knock at this door and ask for her and turn away in despair," and this perhaps from not realising that if we are to vitalise tradition it must be for new uses and by bringing new gifts. The goal lies ahead, not behind.

The Nineteenth Century.

The Indian poet might have had architecture in his mind when he wrote: "It

seems that there is a break in the chain of light, and that one of the stars has been lost." And, after describing the search for that, which, through neglect, was lost to sight, he continues: "Only in the deepest silence of night the stars smile and whisper among themselves. Vain is this seeking! Unbroken perfection is over all." That is no bad suggestion of the position following after the fall of the first of the arts from her pre-eminence. It is noteworthy that architecture touched the lowest point during the most remarkable century in history. In the nineteenth century channels of thought and methods of work changed fundamentally. It became the turn of science and invention to advance the race. The nineteenth century moved to a new impulse—scientific, not artistic; the scientific mind necessarily regards tradition with suspicion, yet, serene as are the heights of science, she cannot supplant the arts in their ultimate supremacy over the mind. Mr. Thompson, the scientist, writes: "Routine skill, scientific skill, and artistic skill form an ascending series of human power and activity. For true art, in whatever occupation it may be developed, is the final and highest expression of our whole character, powers, and personality—whether the artist be a handicraftsman, a head craftsman, or both." That is a generous admission from science, and one that, I think, would not have been made sixty years ago.

With every considerable change, however beneficent it may ultimately be, there is always an evil time to live down; such a time of change we are passing through, and the sacrifices involved sometimes appal us. During this time there have always been men in perfect correspondence with architecture, though their output has been small compared to what it might have been had they lived at a time secure in the possession of a tradition and assured of a constant demand and constant appreciation. It is early yet to see clearly what the nineteenth century has done for art; it may be, in the words of Pater, writing of the fifteenth century in Italy: "By hastening the decline of art by withdrawing interest from it, and yet keeping unbroken the thread of its traditions, it had suffered the human mind to repose itself, that when day came it might awake, with eyes refreshed, to those ancient ideal forms."

Industry and Art.

The new industrial system, the most far-reaching product of the last century, has yet to make good, if I may use an Americanism. It replaced wherever possible the delicate skill of the human hand by inhuman machinery, and the best craftsmen of the day turned all their great ability to perfecting these new machines, to the apparent undoing of the older arts; in the fifteenth century came the books, in the nineteenth the machine. Both were revolutionary, both have come to stop and have to be hitched to the star of architecture. For a period of transition such as this Montaigne's advice is noteworthy. "We must," he says, "live among the living, and let the river flow under the bridge without our care, above all things avoiding fear, that great disturber of reason." We may not be able, like Montaigne, to "slumber tranquilly on the pillow of doubt," and we do not give way to pessimism or undervalue the opportunities that

are ours. We are confident of the ultimate supremacy of art.

In the revivals of the last century there were both a necessity and a weakness—the necessity of satisfying a need and of expressing new thought in forms to which the eye was by happy association accustomed, and the weakness inherent in human nature of looking backward instead of forward. In a country with a history like that of Europe the tendency is to live on the past, first on one phase of it and then on another. The changes were at such a pace that even culture tended to regard all things and principles of art as inconstant modes or fashions. All that is of the past. We are recovering our balance; we have learned that revivals are merely stop-gaps; that a thing can only be done once, and that we cannot recreate the past. That curious haunting sense of magic surrounds and is inseparable from the life as well as the art of the Greeks, the mediæval craftsmen, and the masters of the Renaissance. Those who still put their hope in revivals are not in love with architecture, but with their own idea of what architecture ought to be. "When the half-gods go the gods arrive," for it is our experience that there is always something better than we saw at first.

Hope for the Future.

We are all hoping for the time when we shall express ourselves in a common language, though it is possible to attach too much importance to this; and in the meantime it is well to recollect that other centuries have in periods of transition expressed themselves without the slightest cohesion of style. Anderson, in his "Italian Renaissance Architecture," says: "St. Mark's Venice; St. Ambrogio, Milan; Pisa Cathedral, and San Miniato, Florence, are, for example, contemporary churches." When the time was ripe these experiments gave place to a common outlet congenial to it. Who is to say that the world is not the richer for the experiments of transition?

Fortunately, history is now being written and taught as a continuous development; the old watertight compartments have broken down. Pagan and Christian art are no longer harshly opposed; we observe the identity and continuity of European culture; to this deep view the periods of quiescence or transition are not full stops; we have only recently learned that Greek art was the culmination of centuries; we have still some of us to realise that the Renaissance was the uninterrupted effort of the Middle Age, and that Michel Angelo and Piranesi were romanticists on one side of their nature.

The Classic spirit, then, embraces the whole field of excellence; it breathes alike in the Classic temple and the Christian Church, and pervades the best of our own work; it is above the frailty and processes and systems, the accidents of time and material. That the evolution of style must be slow is obvious; to assume that it will be a return to any past phase of expression is illogical; to believe that it will be connected with all that is noble and lovely in the works of the past is reasonable.

A vote of thanks to Mr. Green was proposed by Mr. Reginald Blomfield, seconded by Mr. Gerald Horsley, and supported by Mr. E. Guy Dawber, Mr. Maurice E. Webb, and others. Mr. Green made a brief reply.

* Extracts from the Presidential Address to the Architectural Association, given on Monday, October 27th.

PROJECTED NEW WORKS.

Secondary School, Derby.

It is proposed to build at Derby a new secondary school for girls at a total cost of £14,188.

Picture Houses, Aberdeen.

Plans have been passed by Aberdeen Town Council for the erection of two new picture houses.

Pier, Burnham.

A proposal to erect a new pier at Burnham at a cost of £10,000 is now under consideration.

Police Station, Barrow.

Barrow Town Council contemplate the erection of a new central police station at an estimated cost of £16,000.

Arcade, Forfar.

A proposal is under consideration at Forfar for the erection of an arcade leading from the Town Hall to the Municipal Chambers.

Harbour Improvements, Belfast.

Belfast Harbour Board have decided to spend an additional £45,000 on the erection of wharves and jetties in the Musgrave Channel.

Hospital, Danverraig.

Swansea District Sanatorium Committee propose to erect a new hospital at Danverraig, to provide accommodation for fifty beds. An architect is shortly to be appointed.

Factory, Tipton.

Messrs. Joseph Wright and Co., engineers, of Tipton, have acquired land adjacent to Factory Road, on which it is proposed to erect a factory for boiler construction.

Masonic Hall, Manchester.

The Provincial Lodge of Freemasons of East Lancashire have secured a site in Deansgate, Manchester, on which it is proposed to erect a new masonic hall at an estimated cost of £20,000.

Workmen's Dwellings, Northwich.

A Local Government Board enquiry has been held into the Northwich Urban Council's application to borrow £8,500 for the purchase of a site and the erection of forty-eight workmen's dwellings to let at 4s. 6d. per week.

Sanatorium, Stockport.

Stockport Town Council have agreed to the purchase, for £6,500, of Woodville Estate, Reddish, for the purposes of a sanatorium for consumptives under the National Insurance Act. The estate comprises nineteen acres.

Orthopaedic Hospital, Birmingham.

The General Committee of the Royal Orthopaedic and Spinal Hospital, Birmingham, propose to rebuild their premises on the present site at an estimated cost of £30,000.

Pier and Baths, etc., Merriion.

A Local Government Board enquiry has been held into the application of the Pembroke Urban Council for permission to borrow £24,400, to be devoted to the provision of a pier and baths, road improvement works, a refuse destructor, and workmen's dwellings.

Town-Planning Scheme, Richmond.

The Local Government Board have given authority to the Town Council of Richmond (Surrey) to prepare a town-

planning scheme under the Housing, Town Planning, etc., Act, 1909. The scheme will relate to an area of about 514 acres in the borough and in the urban district of Brentford.

Improvements, Scarborough.

Scarborough Corporation have decided to proceed with the erection of a public shelter, etc., in the new South Cliff Gardens, at an estimated cost of £1,450, and to lay out terraces, an additional roseroy, and an invalids' path at an estimated cost of £1,970.

Working-Class Dwellings, Glasgow.

Plans are being considered by Glasgow Town Council for the erection on ground at Kennyhill of eight three-storey tenements of two-apartment dwellings, and seven two-storey blocks of three apartment cottages. The estimate of the tenements, including site, is £9,270, and of the blocks of cottages, including site, £6,540.

London Garden Suburb Scheme.

The Housing Committee of the L.C.C. have prepared a scheme for building a garden suburb on part of the land owned by them at Tottenham, at an estimated cost of £448,500. The scheme provides for the erection of workmen's dwellings on 62 acres and for the sale or lease of 43 acres for better-class houses, the remaining 19½ acres being devoted to public buildings and open spaces. Two main avenues, each a hundred feet wide, are to be built, and are to harmonise with the scheme of a new main arterial road to Cambridge.

Development Scheme, Brighton.

Brighton Town Council propose to recommend the promotion of a Bill in the next Session of Parliament to authorise the provision of a hydropathic spa bathing establishment and recreation rooms, in conjunction with the proposed concert hall on the Aquarium site, and for the repeal of existing restrictions to enable them to build above the level of the Marine Parade adjoining. This project is the immediate outcome of the recent tour by members of the corporation of German cities, notably Wiesbaden and Bad-Nauheim. No official estimate is given, but the sum of £100,000 is mentioned as the probable cost of the scheme.

London.

The L.C.C. have consented to the erection of the following works:—A building upon a site abutting upon the northern side of Flaxman Road and the eastern side of Redan Terrace, on the application of Mr. E. W. Banfield. Buildings on the northern side of Fitzroy Park, St. Pancras, on the application of Mr. J. Farrer. An electricity sub-station on the northern side of Dalston Lane, Hackney, and a corrugated iron screen at the southern end of the building, on the application of Mr. N. Scorgie, on behalf of the Hackney Metropolitan Borough Council. An electricity sub-station on the northern side of Balcombe Street, leading out of Lauriston Road, Hackney, and a corrugated iron screen at the southern end of the building, on the application of Mr. N. Scorgie, on behalf of the Hackney Metropolitan Borough Council.

New Municipal Works.

The Local Government Board have held or have decided to hold enquiries into proposed expenditure by public bodies as follows:

Water Supply.—Neath Rural District Council, £4,160 for Clyne, Neath Lower, and Resolvend (November 6th).

Sewerage, Drainage, and Sewage Dis-

posal.—Orsett Rural District Council, £2,130 for Little Thurock (November 4th); Hemsworth Rural District Council, £5,636 for Elmsall and South Kirkby; Oldham Borough Council, £5,000 (November 5th); Stone Rural District Council, £2,300; Golcar Urban District Council, £14,026 (November 6th); Wath-upon-Deane Urban District Council, £13,000; Lichfield Rural District Council, for Burnwood Edial and Woodhouses, no amount stated (November 7th).

Street Improvements, Public Walks, and Pleasure Grounds.—Ealing Borough Council, no amount stated (November 3rd); Sheffield Corporation, £19,993 (November 4th); Finedon Urban District Council, no amount stated; Oldham Borough Council, £7,500; Swansea Rural District Council, £1,650; Littleborough Urban District Council, £9,600 (November 5th); Todmorden Borough Council, £1,705; Penarth Urban District Council, £1,800 (November 7th).

Various.—Seaham Harbour Urban District Council, housing, £9,577 (November 3rd); Auckland, Shildon, and Willington Joint Hospital Board, tuberculosis pavilions, £5,600; Linthwaite Urban District Council, housing, £26,000; Sheffield Corporation, alterations to baths, £3,020, railway siding, £2,000; Sale Urban District Council, public offices, etc., £11,050; Wandsworth Borough Council, swimming baths, £11,000, burial ground, £5,000; Maesteg Urban District Council, offices, £11,250 (November 4th); Bradford Corporation, erection of hospital, £2,500; Huddersfield Borough Council, housing, £96,973; Whitworth Urban District Council, electric lighting, £10,965 (November 5th); Harrow-on-the-Hill, housing, no amount stated; Elland Urban District Council, electricity undertaking, £1,000 (November 6th); Chard Borough Council, housing, £1,200; Todmorden Borough Council, electricity undertaking, £5,800, bandstand, shelters, etc., £1,500 (November 7th).

A REMARKABLE AQUEDUCT.

A great feat of engineering will be accomplished next December, when the water is sent through a 17-ft. tube running from Ashokan Reservoir, in the Catskill Mountains, New York State, to supply New York city, 127 miles away. The Catskill Aqueduct, as the enterprise is known, has involved piercing mountains, undermining rivers, traversing deep and broad valleys, and tunnelling through the bowels of New York city from end to end. When the water first enters the 127-mile tube it will take three days to reach New York. The aqueduct will have a flow of 500,000,000 gallons per day, and a reserve capacity of 900,000,000 gallons to be used in case of fire. The Ashokan reservoir, where most of the water is stored, is built in the heart of the Catskills. It has an area of 8,180 acres, and a capacity of 132,000,000,000 gallons. It has cost £3,600,000, and will tap 900 square miles of territory. To create this reservoir seven villages were razed and 2,000 people were moved, eleven miles of railroad were torn up, sixty-four miles of road were discontinued, forty miles of new highway were laid, and ten new bridges were built. The tunnel through the rock under New York city is thirty-four miles long. The whole undertaking has cost £35,400,000, 17,240 labourers having been working on the gigantic system for seven years.

SPECIAL LEGAL REPORTS.

**Sub-Contractor: Liability of Principal.
Claim by Receiver for Contractor.***Babcock and Willcox, Ltd., v. The Metropolitan Water Board.*

October 25. King's Bench Division. Before Mr. Justice Channell.

This was an action by Messrs. Babcock and Willcox, Ltd., of Renfrew, boiler manufacturers, against the Metropolitan Water Board, to recover the sum of £3,134 7s. 6d., being the balance of an account alleged to be due to the plaintiffs for the supply of boilers, etc., or, alternatively, moneys due under an agreement between the defendants and the Thames Ironworks, Shipbuilding, and Engineering Co., which agreement had been assigned to the plaintiffs.

Counsel for the plaintiffs, Mr. Colam, K.C., said his clients were practically monopolists in the water-tube boiler business, and had frequently built boilers of this kind for the defendants. When in 1907 the Board were proposing to construct a new reservoir at Walton-on-Thames the engineers got into touch with a representative of the plaintiffs and discussed the question of the supply of boiler and other accessories. As a result it was agreed that the Thames Ironworks Co., who were doing a great deal of the work in connection with the erection of the reservoir and machinery, should formally tender for the supply of the boilers, which it was understood that the plaintiffs would actually supply. The Thames Company did, in fact, obtain the tender for the supply of the boilers on figures supplied them by the plaintiffs, and plaintiffs supplied the boilers to the Thames Co. Various sums of money were from time to time received from the defendants through the medium of the Thames Co. Plaintiffs throughout claimed to receive in full the money paid to the Thames Co. by the defendants in respect of the boilers. Later it was suggested by the defendants that their contract was with the Thames Co. only, and that any further sums as they might become due would only be paid to that company. Counsel for plaintiffs submitted that as far as this contract was concerned the defendants were the principals of the Thames Co., who acted as agents, and consequently the plaintiffs were claiming for the balance of account in respect of goods sold and delivered.

Defendants denied that the contract was originally with the plaintiffs, and they denied any assignment. They considered that the contract was with the Thames Co., and the liquidator of that company had communicated with the defendants to the effect that further sums due under the contract should be paid to him.

Mr. James Rosenthal, managing director of the plaintiff company, said that his firm understood that they were tendering, not directly to the defendants, but through the Thames Co., who afterwards received a big contract, of which the supply of boilers and accessories was a part.

Cross-examined: The total of the plaintiffs' contract for the defendants through the Thames Co. was some £13,000, or more.

This being the plaintiffs' case, Mr. Holman Gregory, K.C., submitted that there was no case against the defendants under the circumstances. This was a case of building owner and contractor, with a power to sub-contract, and on that basis the parties dealt. He denied that the

Thames Co. were the conduit pipe between the parties as alleged by the plaintiffs.

His Lordship, in giving judgment, said it was clear that the Thames Co. had to tender to the defendants for all the work in connection with the new reservoir, including the supply of the boilers, and were not allowed to tender only for any portions of the work. As a matter of fact, the Thames Co. asked the plaintiffs to tender to the defendants for the supply of boilers and accessories, but his lordship could not hold that in doing this the Thames Co. acted with the authority of and on behalf of the defendants. The Thames Co. accepted the plaintiffs' tender on their own account and were under no obligation as far as the defendants were concerned to accept that particular tender. Dealing with the suggested assignment, his Lordship said that in his opinion a portion of a lump sum contract such as was made in this case between the Thames Co. and the defendants could not be assigned. There would be judgment for the defendants, with costs.

Party Wall Dispute—Alleged Encroachment and Trespass.*Horton's Estate, Ltd., v. Crockford, Grove, and Sons, Ltd., and Another.*

October 27th. Chancery Division. Before Mr. Justice Eve.

This was an action by Horton's Estate, Ltd., of Colmore Row, Birmingham, against Messrs. Crockford, Grove, and Sons, Ltd., general drapers, of Bull Street, Birmingham, and the Mayor and Corporation of Birmingham, for a mandatory injunction ordering the defendants to remove and abate encroachments and trespasses committed by the defendants upon the premises Nos. 99 and 100, Bull Street, occupied by the plaintiffs, a declaration that they were entitled to abate and remove such encroachments and trespasses, and a declaration that a new building erected by Messrs. Crockford, Grove, and Sons, Ltd., on the site of the building known as 101, Bull Street, was not entitled to any easement or right of support from plaintiffs' building and land.

By their defence the defendants said the wall was either not situate on the plaintiffs' land or was only partially so, and they also set up that it was a party wall. They did not admit the alleged trespass or encroachment, or that Horton's building was placed in danger. The action was not against the Corporation as a public authority, but as a landlord.

Mr. P. O. Lawrence, K.C., Mr. R. Lawrence, K.C., and Mr. W. E. Vernon represented the plaintiffs. Mr. Younger, K.C., and Mr. Lyttleton Chubb Messrs. Crockford, Grove, and Sons, Ltd., and Mr. Clayton, K.C., and Mr. Tomlin, K.C., the Birmingham Corporation.

Mr. Lawrence stated that the plaintiffs were the owners of Nos. 99 and 100, Bull Street. Between No. 100 and the defendants' property was Union Passage, a public thoroughfare, which had been built over, and the dispute in the action related to a dividing wall on the left-hand side of the passage between Nos. 100 and 101. This wall the plaintiffs claimed. Messrs. Crockford, Grove, and Co. had been tenants of No. 101 under various leases since 1851, and in April, 1906, surrendered their lease to the Corporation, who had become freeholders in 1898. A new lease

of part of the property, cutting off what was required for city improvements, was granted to the company for seventy-five years from 1905. Continuing, he said that Horton's pulled down the whole of their building other than the wall, which latter they could not remove without interfering with the rights of support. When this old wall was exposed it had to be partly built up to make it safe. In 1906 when Crockford's wanted to rebuild they surrendered their lease of No. 101, and at the end of April a new lease was granted, in which they were given the right to build over Union Passage. In May they commenced rebuilding operations, and during the work they had access to both sides of the wall and did what they wanted to do without anyone from Horton's supervising them or knowing what they had done. It was afterwards found, said counsel, that they had taken down a part of the old wall, which plaintiffs said was theirs, and a girder was put across to carry the top of the wall. The result was that Crockford's had hung their wall on to the plaintiffs', and if the plaintiffs were now to pull down their wall it would bring down the whole top wing. Not only had the defendants put a burden on the plaintiffs' wall far beyond any easement they required, but they had also utilised plaintiffs' new wall for the purpose of taking very serious bearings off their new property. This new wall was not of sufficient thickness under the by-laws to stand the weight of their building, and it was only passed, he believed, under a misapprehension.

Mr. William Horton, chairman of the plaintiff company, gave evidence in support of counsel's opening statement.

Mr. Younger: Apart from the weight of Crockford's building on the wall, what damage do you suggest you have sustained?—Witness replied that on account of the manner in which Crockford's had constructed their wall over the old wall they had prevented the plaintiffs from enlarging their windows. He maintained that the wall was plaintiffs', and the conveyance to them in 1864 was the foundation of their title.

Cross-examined by Mr. Clayton, witness was not aware that during the rebuilding by his builders Crockford's permission was asked to pull down and rebuild the party wall.

Mr. Herbert Martin, building and quantity surveyor, of Colmore Row, Birmingham, said: In company with his father he examined the premises and formed the opinion that the wall was the plaintiffs'.

Witness, continuing his evidence, said when he was upon Horton's roof he noticed vibration from trains in the Great Western Railway tunnel. Witness thought if there were not support from Horton's new structure of a substantial nature there would be very serious cracks in Crockford's building. The absence of signs of cracks in the building was, in his opinion, strong confirmation that it was taking a large measure of support from Horton's new structure.

Mr. Clayton said the complaint, as the Corporation understood it, was that the north-west wall was a contravention of the by-laws on account of insufficient thickness. That was the wall that divided Horton's from Crockford's. There was no complaint as to the front or back walls.

The case was adjourned.

CONCRETE AND STEEL SECTION.

(MONTHLY.)

CHOCOLATE FACTORY, BEDFORD, IN REINFORCED CONCRETE.

The accompanying illustrations show a large factory recently completed covering an area of ground about two acres in extent. By the use of reinforced concrete a considerable saving has been effected. The buildings are used for the manufacture of

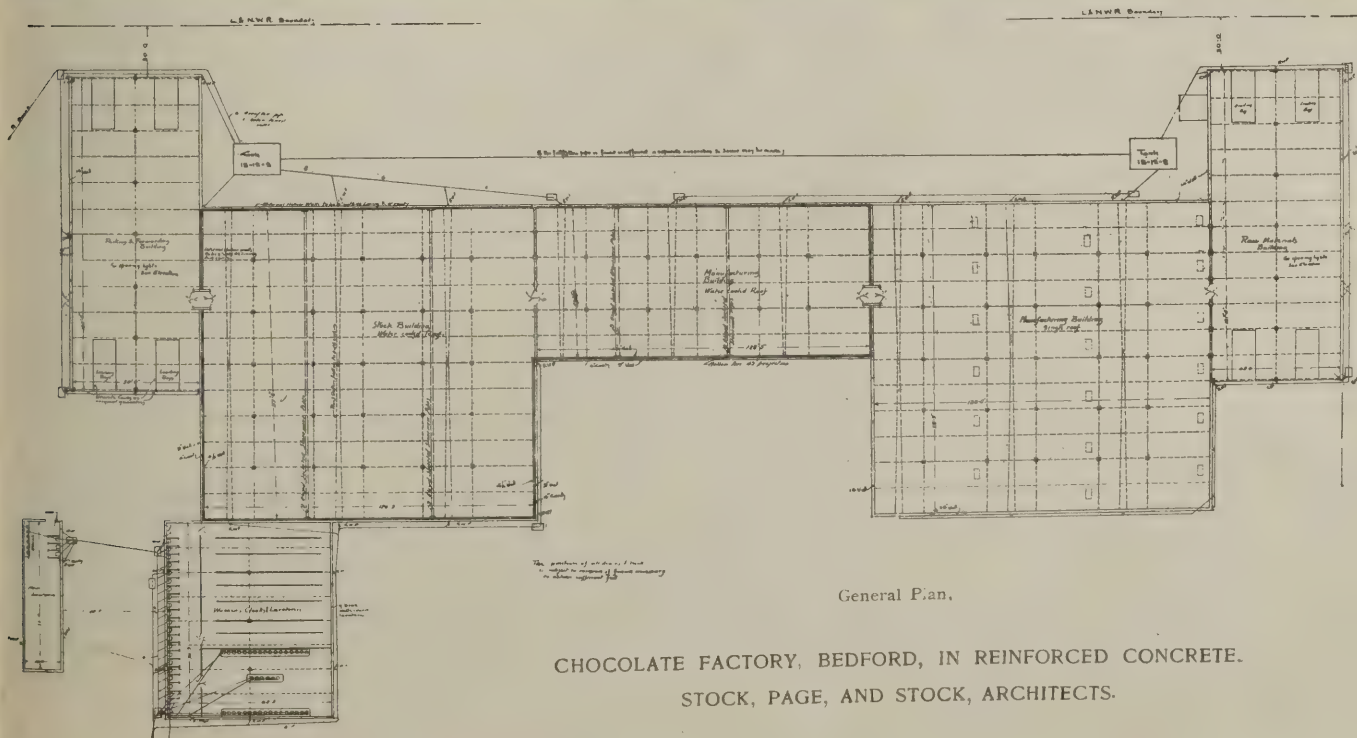
chocolate and confectionery, which demand a cool and, as far as possible, an even temperature.

Tenders were originally invited for slated roofs on steel framing, and in the manufacturing portions it was intended to have a double roof, the space between the two roofs to be sprayed from sparge pipes laid along the ridges.

The cost being too high, reinforced concrete was considered as an alternative, and

the design now adopted consists of north lights alternated with flat roofs supported on stanchions, the entire construction of these being in reinforced concrete. The outside walls remain in brickwork, and are built with a wide cavity ventilated to obtain an even temperature.

An important feature is that the water cooling of the roof was considerably cheapened by the use of reinforced concrete. The method now adopted consists



principally of a sparge pipe at the apex, which discharges down on the slopes of the roofs. The slopes are further protected from the sun's rays by hollow concrete blocks. We reproduce a drawing of this arrangement, from which it will be noticed that the sparge pipes are arranged to discharge also down the face of the inner glazing, two layers of glass being provided. The water cooling of the flats is provided by flooding, and the flats are covered in addition with sand about 6 in. thick. Penstock regulators with overflows enable the roofs to be kept flooded or drained at will.

The total saving in the plain roofs and water-cooled roofs was very considerable, amounting, as against tenders received on ordinary methods of construction, to over £6,000.

It should be noted that while the cost of the building has been so largely reduced the area of the various parts of the factory and the board room is in no way diminished. The average height to the underside of the main reinforced concrete beams is about 17 ft., to enable shafting to be fixed as required.

In connection with the factory much use is made of rain water for water cooling. A water tower, also in reinforced concrete, carrying a tank of 20,000 gallons capacity, is provided with pumping plant. The water drained off the roof is collected in an underground tank built in under the elevated tank and arranged in such a manner as to form a foundation for it.

The whole of the building was carried out under the superintendence of the architects, Messrs. Stock, Page, and Stock, by Messrs. William Moss and Sons, Ltd., of 48, Bedford Row, W.C. Reinforced concrete on the Moss system was employed throughout.

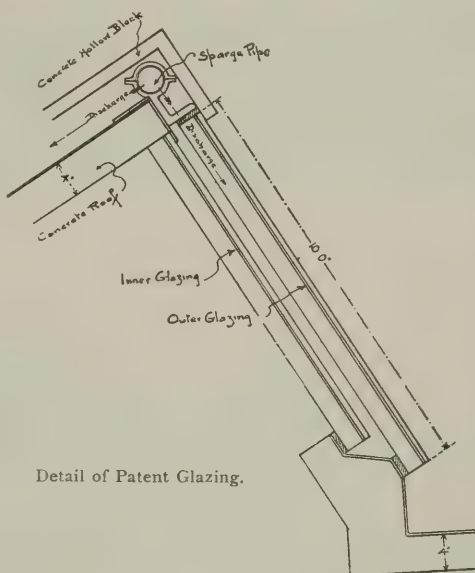
A Report on Reinforced Concrete.

The second report of the Reinforced Concrete Committee of the Institution of Civil Engineers has just been issued by Messrs. Clowes and Sons, price 2s. 6d.

THE EXECUTION OF REINFORCED CONCRETE WORK.

At the third meeting of the new session of the Royal Technical College Architectural Craftsmen's Society, Glasgow, held on Friday, October 24th, Mr. T. G. Gilmour, A.R.I.B.A., in the chair, Mr. Robert Park delivered a lecture on "The Execution of Reinforced Concrete Work." After giving a definition of concrete, the lecturer said that there were great differences of opinion as to which was the best system of reinforced concrete construction. In his opinion there was more to fear from bad workmanship than from design. All systems were equally good. He regretted that architects did not seem to realise the rapid advance of this form of construction towards more general use. The development of this system was left to the firms engaged in the work, who offered designs and estimates free of charge, and, as far as Glasgow was concerned, it was high

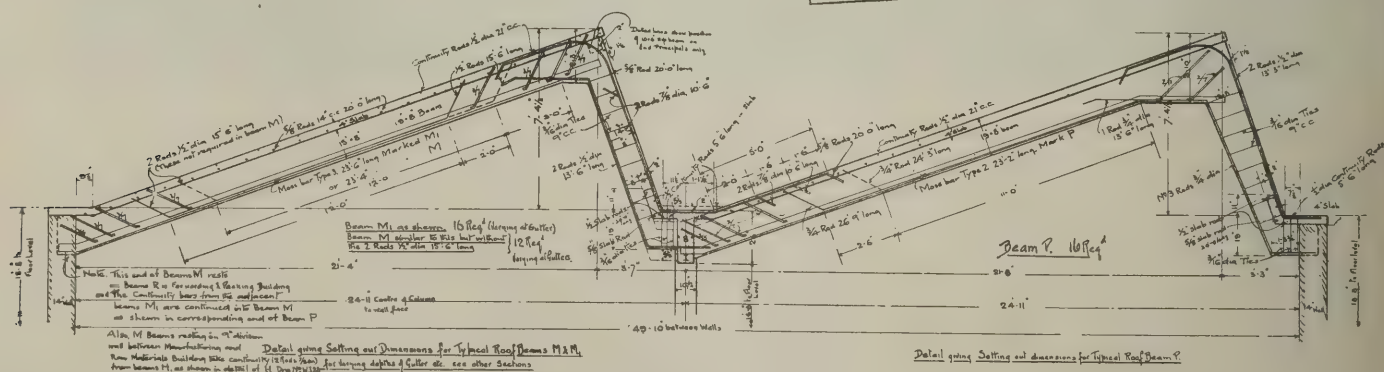
time architects were becoming alive to the fact that specialists were stealing a march on them. Mr. Park said that for good work there must be good and capable management, and the labourers must also be trained to the work, as any sort of casual labour would not do. He emphasised the importance of thoroughly understanding five points, namely, drawing, timbering, placing of steel, mixing and placing of concrete, and finishing of surfaces. The timbering must be absolutely correct, $\frac{1}{8}$ in. in 6 ft. being allowed for sinking. The best kind of level to use was the water level. To plane the sheeting made for economy and good work. The best method of finishing the surfaces was to polish them with carborundum and then fill up the voids with cement mortar rubbed in with a wood float. Mr. Park had several models of timbering and steelwork in position, and was thus able to demonstrate his various points very clearly to his audience.



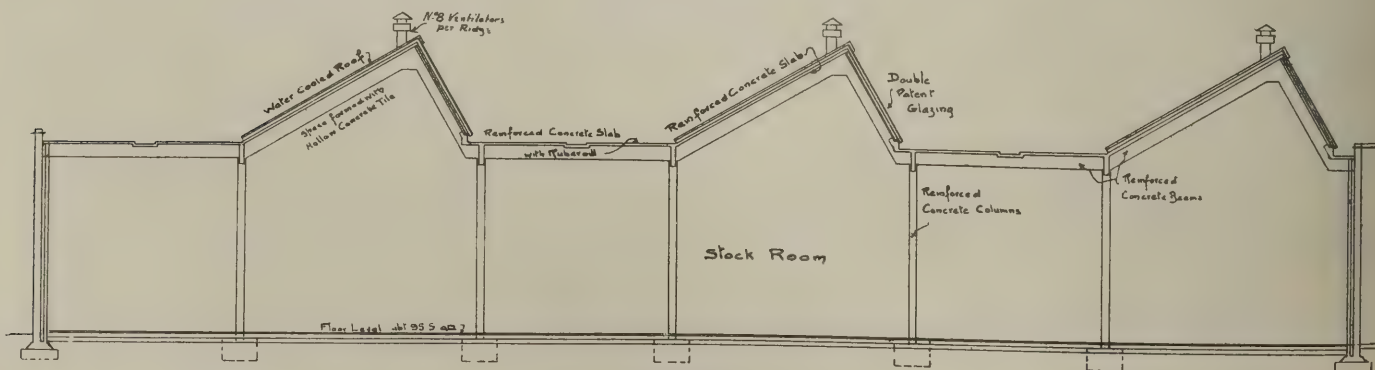
WATERPROOF CONCRETE PAINTS.

Waterproof concrete paints may be divided into two classes: First, those which give white, or light tints, or other colours pleasing to the eye and of a decorative nature; and, second, those which employ compounds of tar and asphalt which are necessarily black, or nearly so, and are seldom used on exposed surfaces. The presence of a finely divided pigment serves to seal up the small pores in the surface of the concrete, leaving less work to be done by the vehicle.

In most cases the proportion of pigment used is small, and by using a cement colour but little change in the surface appearance of the concrete need be made, unless desired, while, on the other hand, almost any shade of colour may be obtained. In this way the waterproof coating is made more serviceable and at the same time ornamental. All these treatments are applied with a brush in the same



Details of Typical Roof-beam.



Cross Section.

manner as paint and are probably as durable on concrete as paint is on wood.

Linseed oil paints should not be applied directly to new concrete, or to any concrete which has not been long exposed to the weather. The free lime in concrete not thoroughly weathered out on the surface by exposure to the elements will saponify the oil, destroying its adhesive power and its life, and the paint will soon peel off. After concrete has been exposed for a long time to the elements, linseed oil paint may be used with greater safety. It is difficult, however, to determine when the concrete is sufficiently free from lime to render it safe for the application of linseed oil paints and it is therefore safer to avoid their use directly on concrete.

There are preliminary applications which may be given to concrete which render it harmless to linseed oil paints. The best known, and perhaps the most thoroughly proved treatment of this kind, is that devised by Charles Macnichol, of Washington, D.C., and published in the transactions of the American Society for Testing Material for 1910. It consists in giving the concrete, after it has been thoroughly set, a priming coat of a solution of zinc sulphate, eight pounds to a gallon of water. This is applied with a brush, and after it is dry ordinary linseed oil paints may safely be applied over it.



CHOCOLATE FACTORY, BEDFORD, IN REINFORCED CONCRETE.
STOCK, PAGE, AND STOCK, ARCHITECTS.

RESPONSIBILITY FOR SUBORDINATES' CALCULATIONS.

Few problems in modern engineering work are more serious than the securing of accurate calculations from subordinates charged with the detailed technical computations which are fundamental in the analysis of operating conditions in field and plant. There is, of course, a legal side to the question, but that is not its broadest aspect. Of far greater importance in the success of an organisation and to the reputation of its employees is the extent to which calculations are scrutinised prior to embodying their results in definite action.

In very large concerns it is obviously out of the question for the general executives

to give much time to the accuracy of their subordinates' figures, but some degree of mental checking is a valuable process. From first to last a keen sense of proportions is one of the most important qualifications of a successful executive in any branch of the engineering industry, and with constant practice, men accustomed to think in large figures and to check by rough unit methods often acquire a remarkable analytical skill.

In theory it sounds very well to advocate the selection of reliable men by executives and then holding the former strictly to account for all work performed; but in practical affairs the best results are not always ensured in this way. If an arithmetical error made by a draughtsman leads to a large loss on a contract, the situation

will not be remedied by discharging the man making the initial mistake. The time to forestall such mischief is before incorrect figures get into the tender. A wide latitude is desirable for every executive and subordinate, but this does not mean that accomplished work shall be exempt from the most acute criticism which the wise seeker after industrial truth can apply. There is a great deal said in these days about outlining to those lower down in the ranks the problem to be solved and then letting them get the results in their own way—a method welcomed by every employee with a spark of initiative in his composition, but none the less to be followed by an executive appraisal competent to detect serious errors of wide departures from the probable truth. A little use of mental arithmetic or the slide rule, coupled with the cool and experienced judgment of superiors, will enable many a concern to go forward with new confidence to a larger and sounder business success than it has been able to command in the past.

NEW GOODS STATION, BIRMINGHAM.

One of the sections of the new central goods station which the Great Western Railway Company are constructing at Moor Street, Birmingham, is approaching completion.

Of the reinforced concrete structure on the Moor Street side, which is level with the passenger station, a large portion has been covered with a steel-framed goods shed 420 ft. by 80 ft. The shed has a platform running its whole length and sidings to accommodate about fifty wagons. The work in the lower yard has made considerable progress, and it is hoped that the portion between Moor Street and Allison Street will be ready this year. A new contract has been given out at Moor Street to Mr. T. Rowbotham, the contractor, for three weighbridge offices, checkers' offices, etc., for the Allison Street portion of the goods yard, and another will shortly be awarded for a large block of offices in Moor Street.



CHOCOLATE FACTORY, BEDFORD, IN REINFORCED CONCRETE.
STOCK, PAGE, AND STOCK, ARCHITECTS.

THE MAPPIN TERRACES AT THE ROYAL ZOOLOGICAL GARDENS.

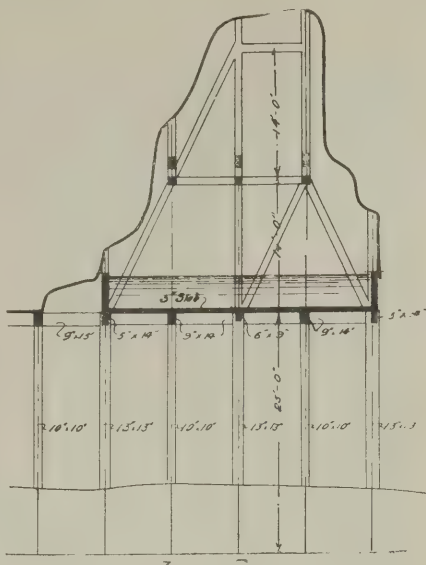
A most interesting as well as most unusual structure is at present in course of construction at the Zoological Gardens, London, consisting of a series of great terraces and hills. The main underlying idea is primarily to give certain animals, such as deer, bears, chamois, and goats, more freedom and space, and to make their surroundings as natural as possible. In addition, the various enclosures, dens, terraces, and hills are planned so as to give the public every facility to view the animals from all points. Owing to the extremely irregular surface, in many places actually precipitous, it was decided to employ reinforced concrete, as being the material best adapted to such very unusual circumstances.

The leading firms in reinforced concrete construction were then invited to submit designs and estimates, based on the general outlines as set out by the architects, Messrs. Belcher and Joass, F.F.R.I.B.A., and the design and tender of Messrs. D. G. Somerville and Co., Ltd., of Westminster, was accepted. Messrs. Somerville prepared a model at their works, showing the construction of the terraces, for the inspection of the Zoological Society.

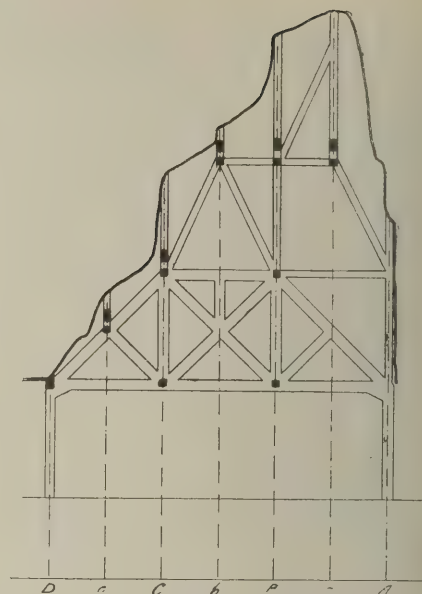
The erection is now well advanced, the whole of the lower terraces, bears' enclosures, and dens having been completed and a substantial start made with the hills. The general arrangement of the construction is in the form of a quadrant of a circle, as shown on the plan, the length of the arc being 416 ft., while the width is 120 ft., the whole covering an area of about 40,000 square feet.

At the lowest point, which is ground level, are the duck ponds and deer enclosures. Then comes the first public terrace, under which are the deer dens. From each end of the elevated terrace the main staircases start, rising in easy flights to the top-most terrace, which forms the base of the hills proper.

Between these two terraces lie the bear



Bracing under second Goat Hill.



Bracing under third Goat Hill.

enclosures, six in number, each being roughly 48 ft. by 46 ft.

To divide these enclosures from the first or lower public terrace there is a deep ditch, 13 ft. wide by 13 ft. deep, which forms an ample protection against the bears escaping, while giving an unobstructed view of the animals. The several enclosures are entirely separated by high buttressed walls.

The bears have a series of covered dens or sleeping compartments, extending under the top terrace. The enclosures are also provided with large tanks or ponds, containing about 20,000 gallons of water, which can be changed daily.

Beyond the top terrace the main hills start, which are to be inhabited by the chamois and goats. There are in all, four hills, the average height being 72 ft. from datum. The general system of construction embodies a very large number of reinforced concrete columns, spaced at 7 to 14 feet centres each way, and supporting the irregularly shaped slab or covering. The columns vary in length from 4 to 67 ft.

These very numerous columns take the concrete slab or covering direct in the case of the lower dens and bear enclosures.

Beams consisting of $\frac{1}{2}$ -in. bars framed in the thickness of the slab, which is 5-in., radiate in every direction from column to column.

The reinforcing bars of the slab varying from $\frac{1}{4}$ -in. to $\frac{1}{2}$ -in. diameter run at right angles to the beams in the usual way, and spaced about 5-in. centres.

One of the great difficulties which Messrs. Somerville had to face was the formation of the irregular surface representing the rockwork, the cost of ordinary timber centering, even where practicable, being prohibitive. They surmounted this difficulty in an extremely ingenious yet simple manner by using ordinary wire netting of $\frac{1}{4}$ -in. mesh as a permanent centering, which could be bent and shaped to follow the lines of the rockwork.

It was found that, by a special method of strutting and supporting the netting, the concrete could be retained until



THE NEW MAPPIN TERRACES AT THE ROYAL ZOOLOGICAL GARDENS. JOHN BELCHER, A.R.A., F.R.I.B.A., AND J. J. JOASS, F.R.I.B.A., ARCHITECTS.

set, and at the same time made to follow natural rock formation.

The reinforcement bars, which had to be bent to extraordinary shapes, were laid on the netting in the usual manner and then concreted in.

As a result of the scientific mixing and laying of the concrete, the six great tanks in the bear enclosures, containing hundreds of tons of water some 20 ft. above the ground, are absolutely watertight, without the application of any special waterproofing or asphaltting.

Under the main hills, which spring from the top terrace at the top of the bear enclosures, the same system of columns is employed, with the exception of the third hill. Owing to the great height of columns necessary, an elaborate system of horizontal and diagonal cross bracing is employed, as illustrated on the preceding page.

As mentioned, the construction of the third hill varies somewhat, it having been decided to construct a cinematograph theatre under it, so that no columns could be allowed. The whole of this hill, some 72 ft. in height, is therefore carried on huge reinforced concrete lattice girders, each having a clear span of 42 ft.

In order to supply the ponds in the bear enclosures, a great storage tank is being constructed under the second hill, at a height of 25 ft. above datum. It is interesting to note that the whole of the column reinforcement, as well as that of many of the beams, is being assembled on the

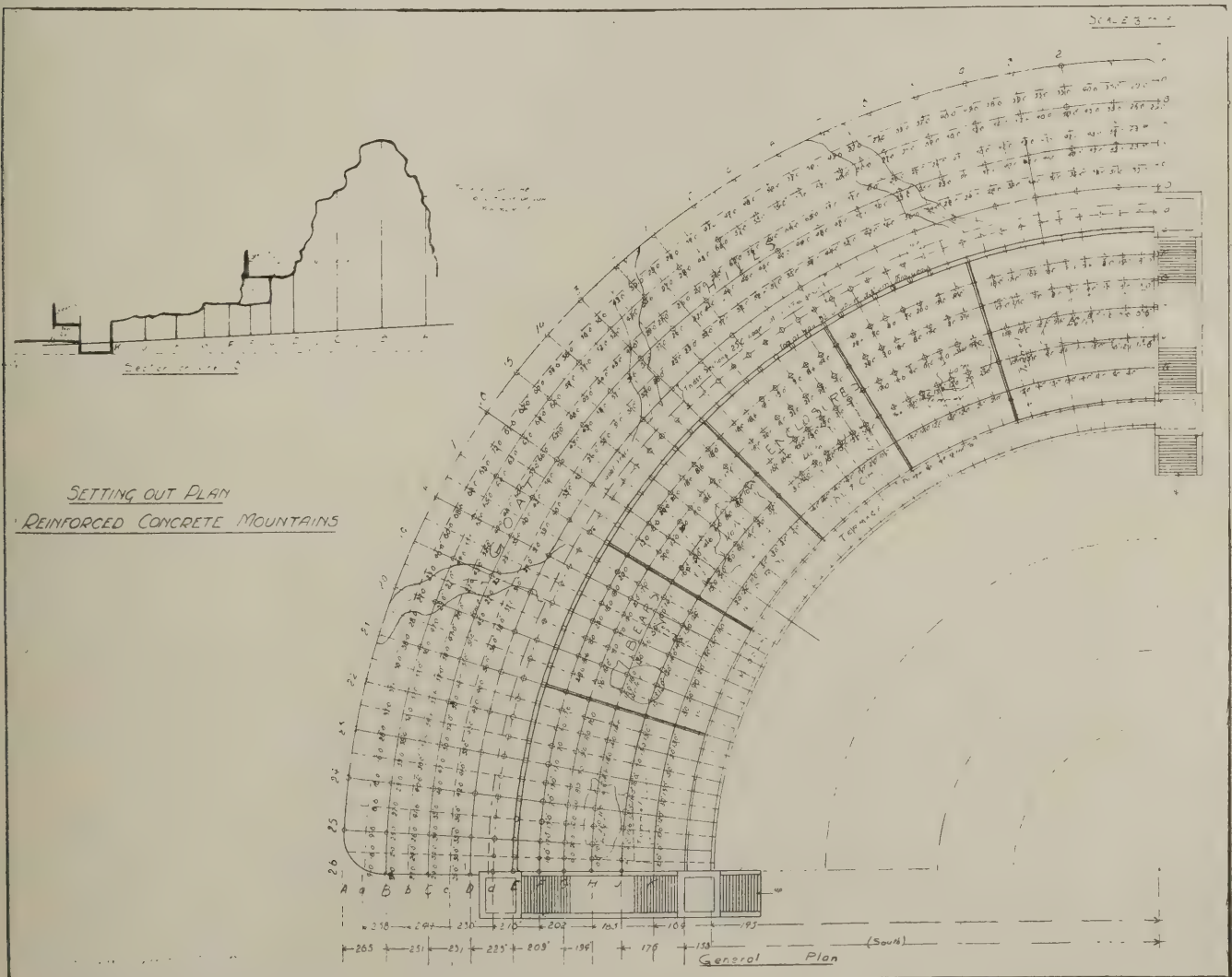


General View of Terraces in course of Construction.

ground and hoisted into position, in the form of a complete rigid frame. This is made possible by Messrs. Somerville's patent twisted stirrup, which grips and

braces the main bars so tightly as to render them immovable.

Mr. Alexander Drew is the inspecting engineer.



THE NEW MAPPIN TERRACES AT THE ROYAL ZOOLOGICAL GARDENS: HALF PLAN SHOWING SETTING OUT OF REINFORCED CONCRETE MOUNTAINS

COMPETITIONS.

Barnsley New Town Hall.

Barnsley Corporation have decided to erect a new town hall at a cost of £20,000. Premiums of £100, £50, and £25 will be awarded.

The accommodation proposed to be provided is as follows:—

Town Clerk's Department.—Private office for Town Clerk, general office for staff of six, room for chief assistant, an additional room, and large strong room in basement.

Borough Surveyor's Department.—Private office for Surveyor, inquiry office, general clerk's office, Building and Drainage Inspector's office, drawing office, plan room, small room for samples and for testing purposes, strong room for plans and valuable books and documents in basement.

Waterworks Manager's Department.—Small office for clerk and General Manager's office.

Borough Accountant's Department.—Private office for Borough Accountant, general office (staff of ten), large strong room in basement (provision for safe to be made in it), rate collector's office (safe accommodation also required, staff of three at present), audit room and spare room.

Sanitary Department.—Two rooms, private room for Medical Officer of Health, clerk's office, waiting room, laboratory accommodation.

Education Department.—Private office, office for chief clerk, general office (staff of six), school attendance office and waiting room, additional committee room, large store room, strong room in basement.

Overseers' Department.—Private room and general office.

Weights and Measures Department.—Two rooms in basement.

Suggested list of accommodation other than office.—Council Chamber, to seat forty-eight members and ten officials, with limited number of seats for general public; two committee rooms, Mayor's parlour retiring room, reception room for Mayoress, caretaker's apartments, lavatories and w.c.'s on each floor; cloakrooms on ground and first floor; entrance hall and staircase; kitchen; heating apparatus, and coal store.

Municipal Technical Institute, Coventry.

The following is a summary of the conditions of the above competition: Sketch designs required for a technical institute proposed to be erected on Pool Meadow, Coventry, at a cost of not more than £25,000. Drawings to be delivered by February 1st, 1914, to be to a scale of 8 ft. to an inch, with a block plan to a scale of 20 ft. to an inch. The institute may be planned with or without a sub-basement and with two or more floors. The building is to be strictly utilitarian in character, the general construction to be on the lines of economical modern factory buildings, the elevation to Priory Street alone to be treated in a severe style worthy of a public building of this importance. Designs to be accompanied by type-written explanatory report, giving descriptions of materials, etc., with estimate of cost of buildings, including the following items: Draining and asphaltting of surrounding yards, heating and ventilating, erection of boundary walls and railings, draining of building, offices and urinals, sink and dish stones, provision of suitable lavatories and fittings, hat and cloak room fittings, all water pipes, water meters, taps and fittings, all gas piping and connections, with gas and electric meters and boxes com-

plete, gas and electric light fittings (the institute to be lighted by electricity) architect's fee, and wages of clerk of works—all fixtures including cupboards. Subject to a satisfactory arrangement, the committee will appoint author of winning design as architect at an inclusive fee of £1,000, to superintend the erection of the buildings. This fee is to be the full payment for all usual services, including provision of a set of drawings for the Local Government Board, as well as the contract drawings. All plans to become the property of the Council. No payment will be made to any competitor whose plans and designs are not accepted. All questions relating to the competition must be received by the Secretary, Education Office, Coventry, not later than November 10th. From him a copy of the site plan may be obtained.

The schedule of accommodation is as follows:

I.—ADMINISTRATION.

(a) Principal's room, (b) clerk's office (500 sq. ft.), (c) vice-principal's room (250 sq. ft.), (d) teachers' common room (500 sq. ft.), (e) students' common room and library (1,200 sq. ft., combined), (f) examination and assembly hall, (g) vestibule, porter's, and telephone box, (h) caretaker's apartments, comprising living room, kitchen, bath, and two bedrooms, (i) lavatories and cloak rooms, (j) stores, (k) cycle sheds, heating chamber, coals.

II.—ENGINEERING.

(a) Mechanical workshop, including blacksmiths' shop, erecting, fitting, precision engineering, and stores (4,000 sq. ft.), (b) power and electrical laboratory (1,800 sq. ft.), (c) calorimetry room and stores (600 sq. ft.), (d) applied mechanics laboratory (e) applied mechanics lecture room (1,800 sq. ft.), (f) drawing office (2,500 sq. ft.), (g) two lecture rooms (600 sq. ft.), (h) boiler house (900 sq. ft.), (i) stores.

III.—TEXTILE TRADES.

(a) Weaving shed (900 sq. ft.), (b) drawing office and lecture rooms (600 sq. ft.), (c) stores.

IV.—BUILDING TRADES.

(a) Plumbers' shop (900 sq. ft.), (b) woodwork, pattern-making, and metal workshop (2,400 sq. ft.), (c) lecture room (600 sq. ft.), (d) stores.

V.—SCIENCE.

(a) Physics laboratory (1,200 sq. ft.), (b) chemical laboratory, including (c) electro-deposition and furnace room for heat treatment (1,500 sq. ft.), (d) balance-room and preparation room (250 sq. ft.), (e) chemical lecture classroom and preparation room (1,200 sq. ft.), (f) physics lecture room and preparation room (1,200 sq. ft.), (g) photographic room (250 sq. ft.), (h) stores.

VI.—COMMERCIAL AND GENERAL.

(a) Two classrooms, each with folding partitions (1,200 sq. ft. each), (b) sixteen classrooms (varying sizes, 500 to 750 sq. ft.).

Town Planning, High Wycombe.

The prizes in the above competition have been awarded as follows: First (£25), Mr. E. W. Turner, Licentiate R.I.B.A., Sheffield; second (£10), Mr. S. P. Taylor, Harrow-on-the-Hill; third (£5), Mr. A. J. Dexter, High Wycombe.

Bluecoat Schol, Birmingham.

The assessors in the above competition, Messrs. G. H. Hunt and Charles T. Bateman, have awarded the prize to Mr. J. L. Ball, of Birmingham. The school, which is estimated to cost £50,000, will provide accommodation for 180 boys and 90 girls.

Masonic Temple, Manchester.

The Provincial Grand Lodge of East Lancashire Freemasons proposes to invite competitive designs for a new temple.

Secondary School, Douglas, Isle of Man.

Eight architects have been selected to take part in the above competition, of which Mr. E. R. Robson is the assessor.

Secondary School, Bath.

Mr. Henry T. Hare, F.R.I.B.A., has been nominated to adjudicate in the competition for a proposed secondary school at Bath.

Town Hall, Middleton.

It is proposed to invite competitive designs for a new town hall. The President of the Manchester Society of Architects is to nominate an assessor.

Elementary Schools, Chesterfield.

Competition designs are to be invited by the Town Council for two public elementary schools, to accommodate 450 and 350 children respectively. Mr. G. H. Widdows, A.R.I.B.A., the Derbyshire County Architect, will adjudicate.

Banner for Victoria League.

The Central Executive Committee of the Victoria League offer a prize of £25 for a banner design. The banner is to be 7 ft. long by 4 ft. broad, and all designs must be drawn full size. They should be adapted to execution in needlework (silk or wool), appliqué, or hand-worked tapestry. Designs must be sent in by October 1st, 1914, to the Secretary, Victoria League, Millbank House, 2, Wood Street, Westminster.

Swimming Bath and Public Hall.

Hendon U.D.C. propose to erect a swimming bath and public hall adjacent to the public offices at Burroughs, Hendon, and in connection therewith have decided to hold a competition among architects for designs, the premiums to be fixed at £100, £75, and £50. The President of the R.I.B.A. has been asked to nominate an assessor.

The architects selected to compete are Messrs. Waldram, Wilson, A. W. S. Cross, Briggs, Hornblower, and Welch.

Masonic Temple, Toronto.

The Board of Trade Journal reports the institution of an open competition for a new Masonic Temple at Toronto. Designs are to be sent by January 20, 1914, to Mr. W. H. Best, 181, Avenue Road, Toronto. Prizes of 750 dol. (£156), 500 dol. (£104), and 250 dol. (£52), will be awarded in addition to the first prize, which will consist of the commission for designing and supervising the erection of the building. The estimated cost is £51,400. The conditions may be inspected at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall Street, E.C.

Change of Address.

Mr. Charles Cowles-Voysey, A.R.I.B.A., has removed to 10, New Square, Lincoln's Inn, W. The telephone number is Holborn 1484.

Masonic Hall, Café Monico.

A Masonic hall is being added to the Café Monico, Piccadilly Circus, from the designs of Mr. H. A. Walkley. Messrs. Godson and Sons are the builders.

The Rome Scholarship in Architecture.

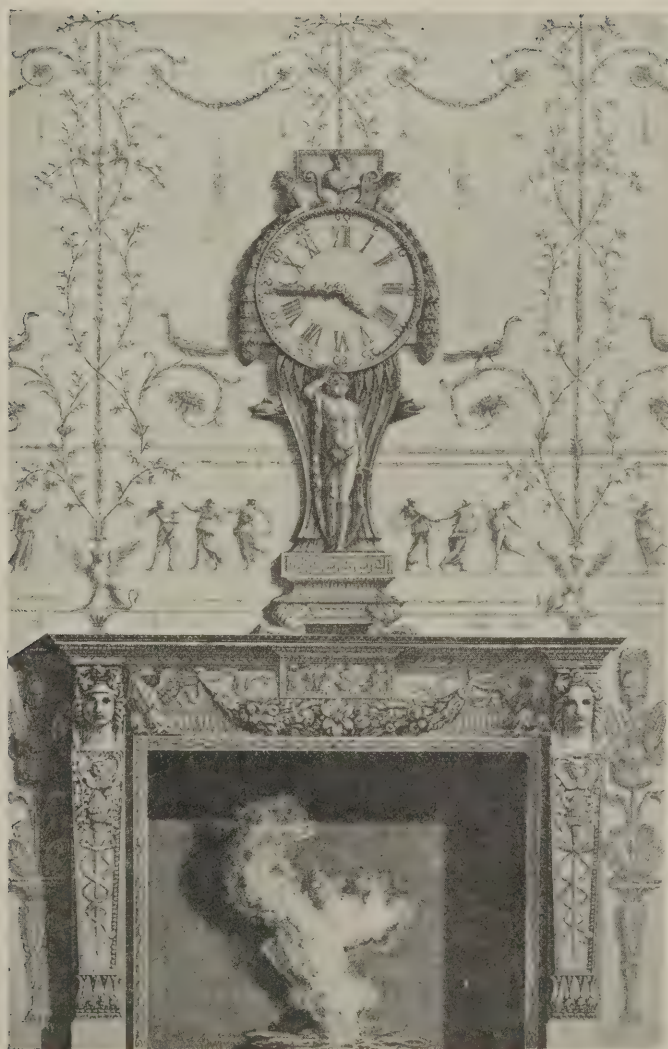
In the notice which we gave of the above award on page 418 of last week's issue an unfortunate misprint occurred, the value of the Scholarship being given as £20 instead of £200 per annum.

THE ARCHITECTS' & BUILDERS' JOURNAL.

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No. 58.



(From Piranesi.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

NOVEMBER 12, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 38 No. 983.

Plans and Copyright.

THOSE who anticipated great results from the insertion, in the Copyright Act, 1911, of clauses relating to architecture, have as yet seen but a poor fruition of their hopes. Although the Act came into operation on July 1st, 1912, it has remained a dead-letter except for a recent endeavour to base upon it a claim for a royalty on some plans for cheap cottages.

Such an application of the Act does not seem to have been prominent in the minds of its promoters, whose chief argument was "that architecture is a fine art, and original conceptions in it should be accorded the same protection as those in the other fine arts." Planning in its ultimate essence or in its correlations is perhaps a fine art, but the appropriateness of the term should leap to the eyes rather than require demonstration by metaphysical analysis or by the hair-splitting arguments of the special pleader.

What was apparently uppermost in the minds of the advocates of architectural copyright was the anomalous position of the architect with respect to the property in his own drawings, the courts having decided, in 1904 and 1905, in the cases of *Gibbon v. Pease*, and *Ebby v. McGowan*, that the architect's drawings became the property of his employer, who may make any use he likes of them: a finding that looks only too much like law and too little like justice. It is doubtful whether the Act provides a remedy for this anomaly, but apparently there are those who think that, incidentally, it does, or that at least it can be adapted to that purpose.

Nevertheless, it is not easy to see how copyright applies to plans. In the Supplemental Provisions appended to the Act, it is stated that "'Architectural work of art' means any building or structure having an artistic character or design, in respect of such character or design, or any model for such building or structure, provided that the protection afforded by this Act shall be confined to the artistic character and design and shall not extend to processes or methods of construction."

Protection upon these terms is shadowy and unsubstantial. It turns on whether or not the design is considered to have "artistic character," an expression that sets up enormous difficulties of interpretation. The immediate question before us is, Can it be held to include, for example, the planning of a cheap cottage? There appears to us to be nothing in a plan that is not essentially utilitarian. However ingeniously it may be devised as to shape, dimensions, relative positions, or lay-out, it cannot be accredited with "artistic character" without doing violence to the commonly accepted meaning of the phrase and to what appears to be the obvious intention of the Act.

It will be remembered that the introduction of architecture into the Act was strongly opposed, on the somewhat conflicting grounds that the difficulties of determining cases of infringement were almost insuperable and that the operation of the Act would tend to

hamper the development of architectural art. Consequently, the architectural clauses were whittled down to a form in which they disarmed opposition and were allowed to scrape through by a small majority, procured by the strenuous exertions of Government whips, who were anxious to include the principle in order to comply with the conditions of the Berlin Convention with respect to this country's participation in the benefits of international copyright.

That object having been secured, the vague and meagre references to architecture which were grudgingly admitted into the Act are otherwise worthless, or very nearly so. For what is the remedy that they provide against piracy?—"Where the construction of a building or other structure which infringes or which, if completed, would infringe, the copyright in some other work has been commenced, the owner of the copyright shall not be entitled to obtain an injunction or interdict to restrain the construction of such building or structure or to order its demolition." Probably the injured architect could obtain damages if he could prove that he had sustained injury—an exceedingly difficult thing to do, as opposing counsel would be very apt to quote against him the old saw that "imitation is the sincerest form of flattery," and to carry the jury with him on the issue. The architect would stand to gain little or nothing by taking action; but, on the contrary, he would risk a considerable loss in costs.

It is notorious that many, if not most, architects profess the scepticism which we have imagined for the jury with regard to the injury that an architect is assumed to suffer by having his work copied. In the nature of things it is not likely that large works will be copied; and the authors of the originals would suffer no appreciable harm if they were. It might hurt a man's *amour propre* to see his work parodied, but that is all. He would suffer no material damage; and, moreover, he is in very small danger of being copied, because the man who gets work of equivalent importance will be only too glad of the opportunity to impress it with his own individuality.

Where real injury arises is in the case of small work, such as villas and cottages, of which hundreds and thousands may be put up from a single original design, without any recognition of the author's moral right to a commission on every house built from his designs. To buy a design from an architect for a small fee, and go on building from it to infinity is so manifestly unjust that we do not wonder at the attempt to counteract so vicious a system by copyrighting plans and charging a royalty in each instance of their use. We do not applaud the action—it savours too strongly of mere commercialism—but neither can we condemn it, except for the reason that in the Copyright Act we can find no tittle of justification for it. As to whether or not the plan in question qualifies for copyright by its originality is a matter that we need not discuss. The crux of the matter is, Can any plan possess "artistic character" within the meaning of the Act? We do not think it can.

W.

East Barsham Manor House.

EAST BARSHAM MANOR HOUSE, it is announced, is to be sold, Lord Hastings, its present proprietor, having instructed Messrs. Knight, Frank, and Rutley to that effect. Thus one of the most interesting specimens of Early Tudor buildings will become subject to the menace of vicissitude that seems inseparable from a change of proprietorship, since the new owner may or may not enter upon possession with a full sense of his obligation to preserve intact, so far as that is possible, so precious a survival of Tudor times. But we will hope that it may fall into the right hands; for even the Ancient Monuments Act is powerless against such minor acts of vandalism as may, in their cumulative effect, destroy much of the interest of such a building. East Barsham Manor House, moreover, is set in the midst of an estate of more than eighteen hundred acres, and if by ill-chance this were cut up or radically altered, the manor-house would suffer from a mere change of environment. Its integral features, however, are not likely to suffer desecration; for it is inconceivable that the rich armorial embellishment, or even the ruins of the great winged griffin and lion carved in brick which flank the wide crocketed arch of the old gatehouse, and still less the well-preserved interior ornamentation, will be meddled with to their hurt. As for the ornate chimneys, decorated with fretwork and fleurs-de-lis, they are safe by reason of their popular appeal.

Open-air Schools.

IN the first of three lectures on "The Place of the Open-air School in Preventive Medicine," which are being delivered at the University of London by Sir George Newman, Chief Medical Officer of the Board of Education, there was what may be pretty safely regarded as an indication of official policy with respect to schooling accommodation. Sir George said that if we are to stem the tide of physical and mental defect in the children of the nation, we must proceed along the lines of the open-air school movement, which he regarded as "one of the great means of reforming and regulating the educational system of the country." He realised that hitherto the movement had been too much regarded as a fad, but he insisted on the necessity for adopting a wholly new and a larger conception of it. He wants it to be properly understood as a process of preventive medicine by which the natural defence of the body may be reinforced and strengthened, a process of curative medicine and liberal education—a school of hygiene for body and mind. From all this it is evident that a new era in school-planning has dawned; because the wider adoption of open-air schools is certain to modify very materially, if not fundamentally, the present practice in school design and construction. The new-type schools which have been already built, as a result of the movement of which the utterances of the Chief Medical Officer of the Board of Education are so significant a portent, can only be regarded as tentative forerunners of more drastic changes.

What London May Learn From Paris.

SOME published particulars of M. Delanney's scheme for enlarging and beautifying Paris have prompted Mr. Arthur Crow to suggest that London should do well to profit by so excellent an example. Mr. Crow points out the dangers of the "unguided development" which London seems destined to perpetuate, since local authorities all round it are at the present moment preparing schemes under the Housing and Town Planning Act of 1909 without taking much heed of the interests of the metropolis as a whole. Local authorities cannot be expected to realise the requirements of the greater plan of which their local plans ought to form intelligent co-ordinated

parts; and, as Mr. Crow observes, it is just at this point where the need for a supreme planning authority is felt, and where the scheme elaborated by M. Delanney will avoid the difficulty in Greater Paris. That scheme provides for the formation of fifty miles of new roads, and for the widening of 225 miles of existing roads, and can only result in restoring Paris to her former rank as the most beautiful city of Europe. Are we less wealthy or less enterprising than our French neighbours? Of course not; but the mischief is that in matters of this kind we are infinitely less clear-sighted. Otherwise the provision of a supreme authority would have been the central feature of the Town-planning Act, and there would have been orderly progress from the outset. As it is, we are simply muddling along in the old inept way.

The Admiralty Arch Improvement.

AT length we are within sight of a settlement of the Admiralty Arch difficulty, the London County Council having passed a resolution requesting the Government to promote a Bill seeking Parliamentary authority for the completion of the Mall to Charing Cross improvement in accordance with the scheme approved by the Council. It is understood that the Treasury have consented to a contribution by the Government amounting to one-third of the £115,000 required; the London County Council and the Westminster City Council contributing the rest in equal shares. The Government Bill will provide for the acquisition of the site of the Liverpool and London and Globe Insurance Company at 56, Charing Cross, parts of 55, Charing Cross, and 17, Spring Gardens; for that of the Phoenix Insurance Company at 57, Charing Cross, and 15, Spring Gardens; and that of Messrs. Anderson's premises at 58 and 59, Charing Cross, and those in the rear at Nos. 11 and 13, Spring Gardens. The effect of the improvement, as designed, will be to open up the semi-circle at the Arch by completing the curves as far as possible, and to increase the width of the approach to ninety feet, thus giving, from the Strand, a field of view through the Arch to the Victoria Memorial and Buckingham Palace.

What is a Storey?

HORSHAM Rural District Council require an authoritative definition of the word "storey." It is important that they should find it, because the just interpretation of their by-laws depends upon the meaning of that evasive word. Certain exemptions are conceded to "two-storey" houses, and these exemptions having been claimed for houses consisting of a lower and an upper floor, the building inspector has objected that these are not two-storey houses, and this view is shared by the medical officer of health. It is also the view of architects and builders in this country; but abroad—in the United States for instance—what we discount as the "ground floor" is usually reckoned as a storey, so that what is here a three-storey building (that is, consisting of three storeys above a ground floor) would there rank as a building of four storeys. This English professional view is seldom or never supported by the dictionaries, one of the newest of them defining "storey" as "any of the parts into which a house is divided horizontally, the whole of the rooms, etc., having a continuous floor." Further confusion has been created by the suggested reform of substituting "floor" for "storey," and numbering every floor, so that ground floor and two storeys would count as three floors; but the "floor" and the "storey" systems being confounded, "ground floor" was discounted as before, so that the example just cited was read "ground floor and first and second floors," instead of "first, second, and third floors," as the reformers had intended. No wonder that the Horsham Councillors are perplexed.

THE PLATES.

The New Façade, Buckingham Palace.

A CRITICISM of the new façade of Buckingham Palace appeared in our issue for last week, and we need only now briefly express the opinion that Sir Aston Webb has accomplished his task in a very successful manner. The new stonework has been bonded into the old wherever possible, and in addition a large number of heavy gun-metal cramps have been used so as to tie the new and old work thoroughly together. The number of men employed was on an average 350 during the day and 180 during the night. The sculptured Royal coat-of-arms in the centre pediment was worked by Sir Thomas Brock in his own studio, and the whole of the remaining architectural carving was carved at the stoneyards by Mr. W. S. Frith.

Extension of Mechanical Engineers' Building.

The extension to the premises of the Institution of Mechanical Engineers, which we illustrate this week, is now being completed to the design of Mr. James Miller, A.R.S.A., F.R.I.B.A., who is also the architect of the new building for the Institution of Civil Engineers, close by. The extension adds to the front of the building at Storey's Gate, Westminster, on the east side, but its main front is to Princes Street. The main entrance to the building has been left unaltered, but the entrance hall has been enlarged and a wide staircase constructed from the lower ground to the second floor. On the lower ground floor, running under the full length of the entrance hall, is a tea-room. From the entrance-hall access is gained to the lecture theatre, which has not been changed in the process of reconstruction. This apartment has a Georgian ceiling, with a central glass dome, from which the room is lighted by day, the lighting by night being from a cluster of incandescent electric hanging lamps. The floor is constructed with movable platforms, which can be arranged to form terraces or a level floor, as desired. The additions on the ground floor are being mainly utilised as offices for the secretary and other members

of the staff of the Institution. On the first floor the additions include a council chamber 38 ft. by 24 ft., leading out of which is the library. The new rooms on the second floor include a large smoking-room and an additional reading-room.

House in Reed Pond Walk, Gidea Park.

This little house, designed by Mr. Clough Williams-Ellis, is one of the most charming at Gidea Park. Brickwork is used very effectively, the angles of the house and the dressings to the doors and windows being emphasised by darker bricks than those used for the walling, and the same treatment is employed in the form of panels above the door and window-heads on the entrance front.

Neo-Grec Detail.

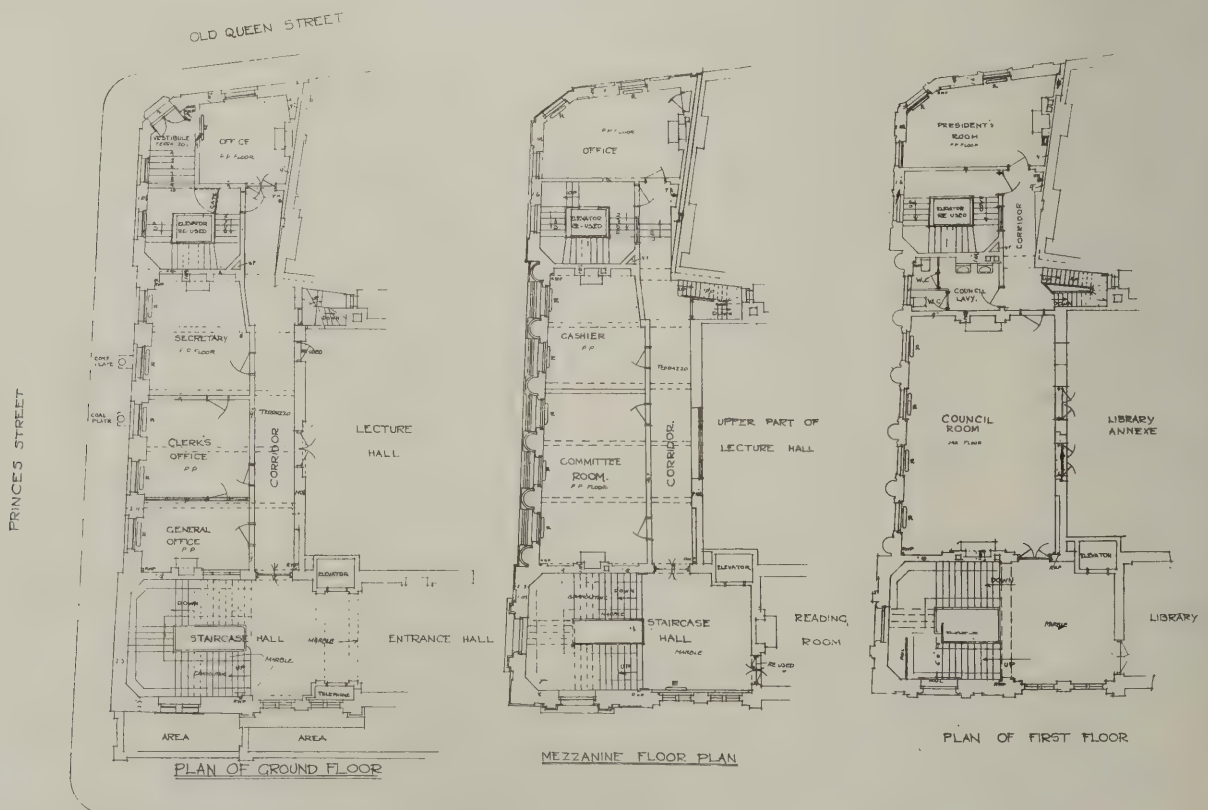
The great resource in design which Duc displayed is well shown in the staircase which we illustrate this week, the filling to the balustrade being especially noteworthy.

Angle of Façade to the Lycée Fénélon, Paris.

The treatment of the corner of a building at the junction of two streets always presents a difficulty, and the illustration of this French school building is interesting on that account. The corner in this case has been sliced off squarely and a carved stone cartouche introduced as a focus of interest, the whole being framed in by twin pilasters. The cartouche itself is very well designed and disposed, but we do not think the brick drops below are happy in their effect.

Working Drawing of Entrance to an American Country House.

The working drawing of the entrance to a house at Staten Island, U.S.A., which we reproduce this week shows, once again, the very complete way in which American architects make their drawings. The present example is based in design on the Colonial work which is still regarded with such favouring eyes. It is very graceful in proportion and exceeding appropriate to a country house. We are indebted to "Architecture" for our illustration.



ADDITIONS TO THE INSTITUTION OF MECHANICAL ENGINEERS, WESTMINSTER.

JAMES MILLER, A.R.S.A., F.R.I.B.A., ARCHITECT.



CURRENT ARCHITECTURE. XII.—THE NEW FAÇADE, BUCKINGHAM PALACE.

SIR ASTON WEBB, C.B., C.V.O., R.A., ARCHITECT.

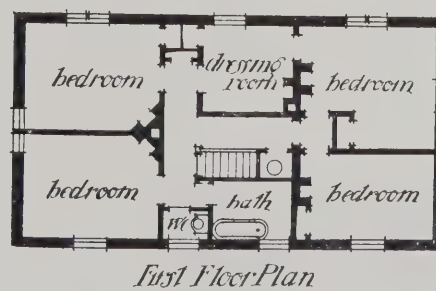
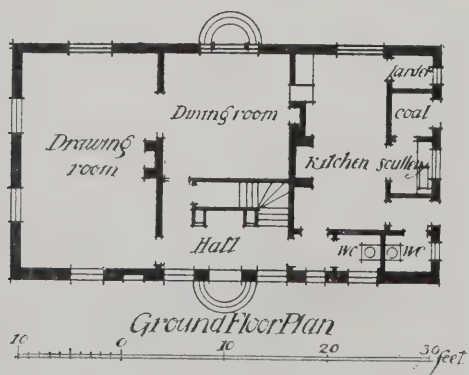


CURRENT ARCHITECTURE. XIII.—THE NEW FAÇADE, BUCKINGHAM PALACE (BY SIR ASTON WEBB),
IN COMPARISON WITH THE OLD FAÇADE (BY EDWARD BLORE).



CURRENT ARCHITECTURE. XIV.—EXTENSION TO PREMISES OF INSTITUTION OF MECHANICAL ENGINEERS, STOREY'S GATE, WESTMINSTER.

JAMES MILLER, A.R.S.A., F.R.I.B.A., ARCHITECT.



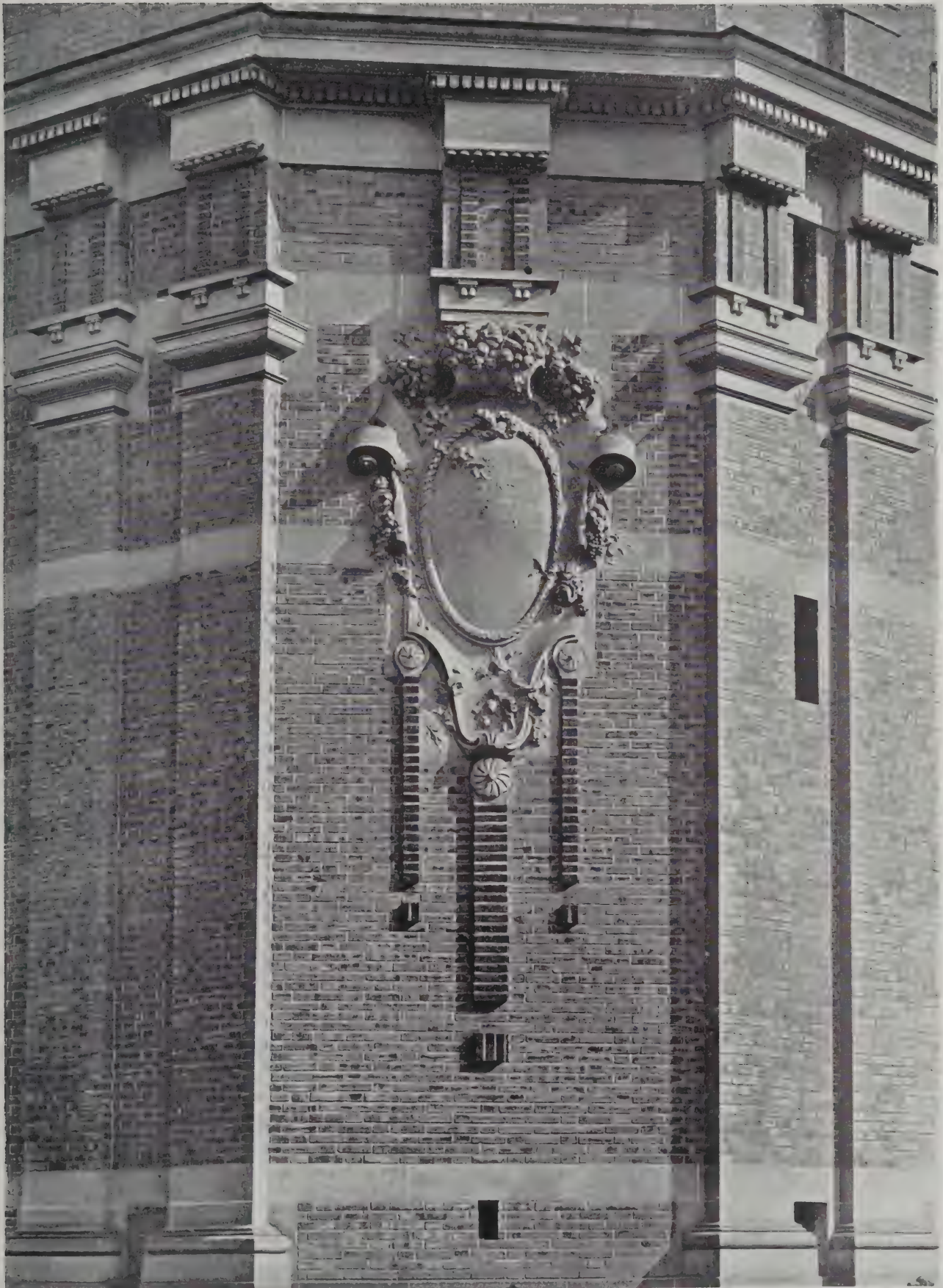
MODERN DOMESTIC ARCHITECTURE. VII.—HOUSE AT GIDEA PARK, ESSEX.

CLOUGH WILLIAMS-ELLIS, ARCHITECT.



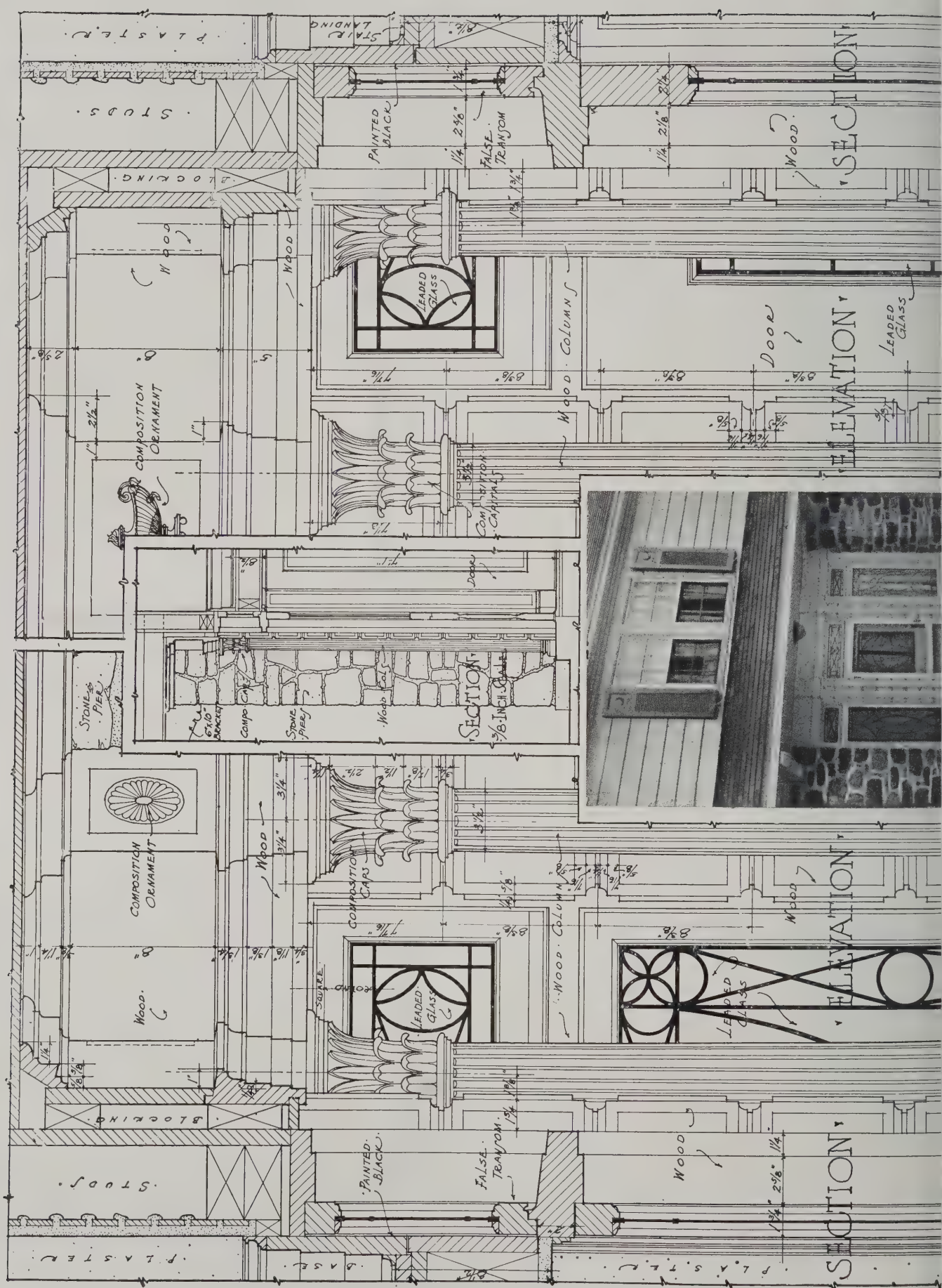
NEO-GREC DETAIL. VI.—STAIRCASE IN PALAIS DE JUSTICE, PARIS.

J. L. DUC, ARCHITECT.



CURRENT ARCHITECTURE. XV.—DETAIL AT ANGLE OF FAÇADE, LYCÉE FÉNELON, RUE SUGER, PARIS.

A. TOURNAIRE, ARCHITECT.



HERE AND THERE.

THE note about cheap cottages which appeared in these columns last week may be supplemented by some comment on the proposal to have a standardised design or designs of varying types to meet requirements in different parts of the country. There is a good deal to be said in favour of such a proposal. But first of all I should like to give an indication of the objection to it that seems to be very widespread. Most people who are not professionally concerned with this subject, when asked to give their views, plunge forthwith into high-sounding jargon. Thus, to cite from a recent compilation of opinions—"the grave danger which is threatening the beauty of our English villages by the erection of a large number of houses which, though possibly convenient, yet have no pretensions to beauty or refinement"; "a dignified, simple, and harmonious design is, therefore, what we should aim at"; "nowadays, with so great a revival in the love of the beautiful taking place," and so on. Then, turning to another source, we find this view put forward for public delectation—"We must beware of the monotonous standardisation which comes from over-rapid building. A village looking like a miniature Brixton would be a horror in which our people would rightly refuse to settle down. It should be made a by-law that every village cottage should differ somewhat in design from the cottages immediately adjacent to it. The cottages must be fairly close together for convenience of communication; but each cottage will have a garden, and the gardens will differ somewhat in shape and size, so that the group will not wear an appearance of dull regularity."

Now, as I regard this matter, the foregoing is more or less fatuous talk. So far as it is indefinite it leads nowhere, and so far as it is definite it is entirely wrong in idea. "Beauty" and "refinement" are words which we should do well to keep out of this discussion of cottages for agricultural labourers; they serve but to remind us of the unpleasant existence of people who, themselves without taste, are mixing up architecture with social reform. Cottage building, apart from the question of cost, is an affair of suitable planning and appropriate handling of material in a perfectly straightforward way, free of all affectation about "art" and "beauty." As for the fear of "monotony," which people are so ready to raise a hue and cry about, that seems to me to be part and parcel of a wholly mistaken view of architecture. In reality, it is based on the notion that no buildings must be alike. But when architecture was a traditional art, all buildings were more or less alike. Who can walk through the Cotswolds without perceiving the same treatment repeated over and over again, while the houses of a later age, the Georgian, offer us examples without number as like as two pins? When old houses like these are concerned, the general public is ready to approve them, and to perceive (when it has been pointed out) how admirably the work groups together. Yet the moment the same sort of principle is suggested to be applied to modern work we are confronted at once with the horror of "dull uniformity" and "monotony." For my own part I had much rather the work of our time showed as pervading a harmony as the Georgian did. I see nothing to be nervous about, therefore, in the proposal to standardise some cottage types which could thus be erected with great economy. Everybody is aware that it will not do to plant the brickwork that is appropriate to Surrey in the middle of a North-Country village where local stone abounds and is the best material to use. Similarly, in the matter of planning, it is obvious that miners in Yorkshire have likes and dislikes which will not conform to the requirements which a Norfolk labourer finds acceptable. But these, after all, are matters of detail.

The main thing to establish is, first of all, how to build decent cottages at a low cost, and, secondly, for the Government to offer, free of charge, plans and elevations which have been drawn up by a committee of capable architects—designs which will be far superior in every way to what the local speculating builder is likely to do.

I wish more presidents, when they settle down to unburden themselves in an annual address, would follow the model of Mr. Reginald Blomfield, who took a single subject for his theme, and dealt with it thoroughly, instead of wandering over half a dozen or more subjects in a desultory way. I notice that the president of the Institution of Civil Engineers also concentrated himself on one topic. But these are rare examples. It has been my fate to share with a roomful of other sufferers the long-drawn-out agony of listening to addresses from the presidential chair which were no more than a sort of glorified annual report, with a few snippets thrown in, dealing with subjects that had already been thrashed out in the professional journals. Presidents of architectural societies, we know, are primarily concerned with their professional work as practising architects, and we cannot expect that they shall all display the literary and critical talent which it is Mr. Blomfield's fortune to possess. At the same time, I feel sure that if they took a single theme for their address they would be able to make something out of it which would be worth listening to, whereas by dawdling about with little bits of information interspersed with mild comment they simply bore their hearers and bring presidential addresses into disrepute.

I was under the impression that it was the peculiar and distinctive privilege of the builder alone to conjoin his business with that of the undertaker—hence my reference last week to the style or title, "builder and undertaker." But, in view of the notepaper heading which a correspondent kindly sends, the collaboration must be extended; the sub-title to the firm in question being "Architects, Builders, Decorators, and Undertakers." In days gone by our streets were sometimes enlivened by a gentleman who produced an astonishing medley of music by attaching instruments to various parts of his body, arms, and legs, and operating them by means of strings and levers. A similar all-embracing performance would seem to be the rôle of the firm who are referred to above, who surely must be accorded the palm for versatility.

Sir James Murray, in his vast task of completing the "New English Dictionary," is trying to find the origin of the word "transept," but has so far failed. Leland's "Itinerary," dating from the first half of the sixteenth century, offers the earliest use of the word. "Then we have not found the word for more than 150 years, when it is used by Anthony Wood, of Oxford, 1692, as transept. Leland may of course have invented the word, and Anthony Wood may have taken it from his 'Itinerary'; but this seems unlikely." Where the learned lexicographer finds himself non-plussed, ordinary humanity cannot hope to give a cue. I would take this occasion, however, to note how the meaning of the word has become extended. Originally "transept" was understood to mean the dividing space between the nave and the chancel—between the laity and the clergy. The arms were a later addition, giving the church a cruciform plan. The curious point to note, however, is that the arms themselves have now come to be known as the "transepts," and, thus considered, they have quite lost the original significance.

UBIQUE.

THE CENTENNIAL HALL AT Breslau.

[Specially Contributed.]

IN Breslau, as in many another city, whenever an exhibition is to be held or any great event celebrated, it has hitherto been the custom to erect a special temporary building, which may afterwards be demolished. This practice, however, has at last been abandoned—at least in Breslau, where the great Centennial Celebration is now engrossing very considerable attention. In this case the Silesian metropolis resolved to erect a monumental building which would serve as a central point for large expositions, and suffice, incidentally, for smaller events.

With this scheme was also included an enlargement of the neighbouring "Zoo," which was decided by competition, the successful competitor being the municipal architect, Professor M. Berg. It must be admitted that he has discharged his trust with great originality and force.

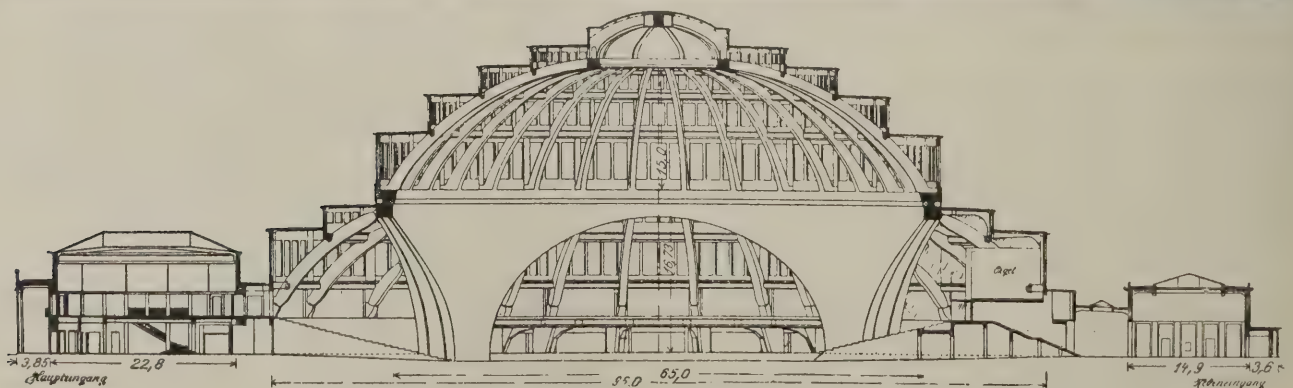
The greatest difficulty connected with the problem consisted in maintaining the line of the Grueneicherstrasse, with its tramway lines. This was used, not as the principal avenue, but simply for traffic to and from the exhibition, the new triumphal avenue being laid out parallel to it.

Exhibition buildings require a great amount of light,

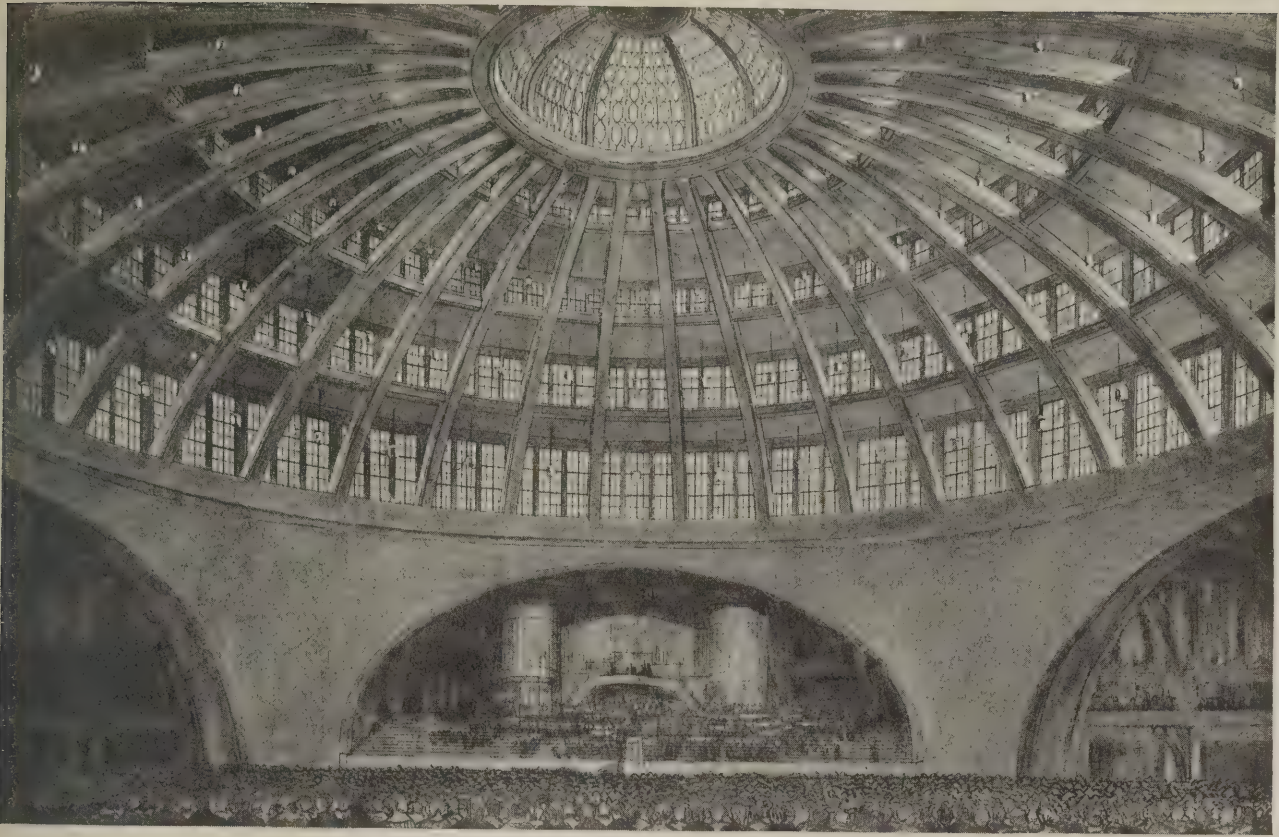
and Professor Berg paid particular attention to this aspect of the problem. He arranged for a small central super-dome, or cupola, which serves only indirectly for lighting purposes, and is really there only for architectural effect, the light being admitted from the sides. Skylights, which are in any case unfavourable to good acoustics, are entirely absent, except in the small cupola mentioned. To avoid too strong direct sunlight, the glazing of the windows is translucent only, producing the effect of thin marble plates. When the hall is used for congresses and similar purposes, the windows of three of the apse-like sides are closed by almost opaque curtains. The fourth apse, for the organ, is entirely windowless. The building contains only one gallery, and that not very deep.

The dome, which is of very large dimensions (as can be seen from the section reproduced below), rests on four arches, which are supported by a cylindrical structure, the principal arches being curves in three dimensions. Their tendency to turn outwards is counteracted by strut arches in the apse-sides, which carry the pressure over to the foundation. Statically, this was the most difficult problem to solve.

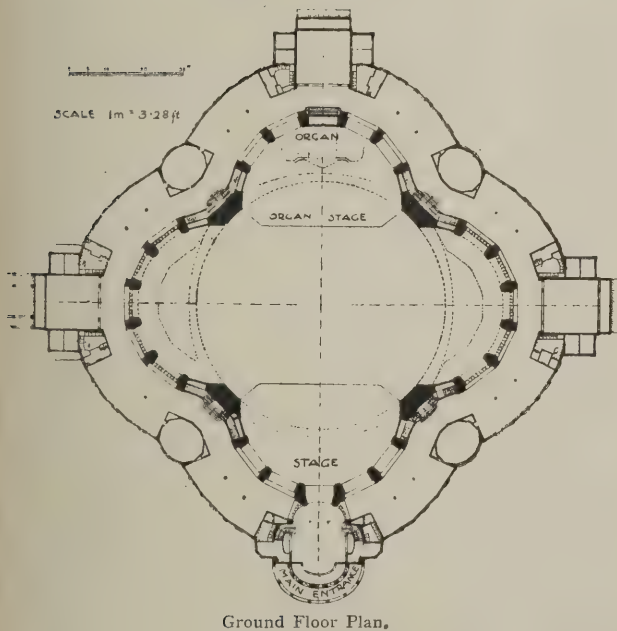
The dome has thirty-two ribs, uniting above in a



THE CENTENNIAL HALL, Breslau. PROFESSOR M. BERG, ARCHITECT.



THE CENTENNIAL HALL, BRESLAU: VIEW OF INTERIOR.



Ground Floor Plan.

MR. L. MARCH PHILLIPPS AND MR. BLOMFIELD.

MR. L. MARCH PHILLIPPS has written in the "Morning Post" a long reply to Mr. Reginald Blomfield, who, in his address to the R.I.B.A., published in our last issue, dealt somewhat severely with Mr. March Phillipps's critical attitude towards modern architecture. The reply is characteristic of the literary skill with which Mr. Phillipps's fallacies are made specious.

Mr. Blomfield, says Mr. Phillipps, may not have intended it quite that way, but the first portion of his address does afford an excellent illustration of the differences between professional and lay criticism, as well as an indication, it may be, of the right province of either. I gather that Mr. Blomfield is inclined to deprecate what he calls mere "literary" criticism, the criticism of amateurs and lookers-on, in comparison with technical knowledge and practical experience. Let us go to our men of science for our knowledge of science, Matthew Arnold used to say, to which Mr. Blomfield would add, Let us go to our architects for our knowledge of architecture. No doubt he is in a great measure right; no doubt, in a profession of which the technique is as complicated and tremendous as it is in architecture, there will always exist a large domain impenetrable to the amateur, and which he will enter at his peril. So far as architecture is the answer to structural problems, it belongs to architects. At the same time, and for the same reason—namely, because building as a mere matter of construction is so engrossing—are not architects themselves liable to become imprisoned, as it were, in their own subject, and to lose sight of the interpretative function of the art and the relations it has to maintain with life if it is to keep its own health? The wall which keeps others out keeps them in, and in their absorption in professional details and each other's performances they are occasionally apt to lose sight of certain broad human truths which the amateur has no such excuse for forgetting, and of

compression ring 52.5 ft. in diameter, and below in a tension ring of 219 ft.

The auditorium is entered by doors from all sides, opening from a ring-shaped corridor, containing, besides the four entrance portals, the necessary cloak-rooms, emergency exits, etc.

The entire structure is in reinforced concrete—a probable result of the lesson taught by the disastrous fire at the Brussels Exhibition of 1910.

The building cost about 2,000,000 marks (roughly £100,000). The hall is 311.6 ft. both in length and width, the interior height being 131.2 ft. The auditorium is 60,278 sq. ft. in area, exclusive of the ring corridor. Inclusive of the seats on the stage for singers, the hall can accommodate about 10,000 persons. The dome contains a very large organ, having 185 "speaking" stops.

which he may be said, therefore, to be the natural guardian and upholder.

He (Mr. Blomfield) quite declines to acknowledge any distinction between the character and status of labour, directed by the mediæval master masons and the labour directed by modern architects. Both master mason and architect were in a position of authority. The master mason was "a person of superior knowledge in control of the workmen" just as the architect is, and this, Mr. Blomfield pleasantly concludes, "knocks on the head the engaging theory of the workman and his own sweet will." The all-important difference, however, is that the authority of the master mason was derived from the workmen themselves. He had risen from the ranks, and, out of many working to the same end and developing the same tradition, was most competent. . . . The difference between guild labour and modern labour is the difference between free co-operation and mechanical obedience, which, again, in terms of building, is the difference between Westminster Abbey and the Buckingham Palace façade.

CORRESPONDENCE.

The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents.

Correspondents are asked to be brief, and to write on one side only of the paper

Mr. Arnold Mitchell and the Standard Cottage.
To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Your criticism of my standard cottage—built in many places at a cost of £110—revolves mainly around the point of size. Those who have seen it, in a very large majority of cases, do not share the view you express. I note that you accept the standard of the Departmental Committee.

May I say that my standard cottage, when enlarged 2 ft. in length, with the width unaltered, exactly complies with the dimensions of this Report. This additional length of 2 ft. is secured at a cost of £15. My contention is that this extra 2 ft. is not a necessity, that where the minimum outlay is sought, the smaller cottage will serve.

You say also that the cottage is not new. I reply (1) that my scheme complies with all reasonable building by-laws, and (2) that the cost is £110 for the smaller cottage, and £125 for the Departmental Report cottage, and that these facts, together, put forward something that is quite new for nothing of the kind upon a commercial basis has yet been done.

Hanover Square, W. ARNOLD MITCHELL.

[We gladly publish the above letter, but still feel that Mr. Mitchell's cottage is far too small. The plans, having been copyrighted, are not available for reproduction; but will Mr. Mitchell give the cubic contents of the rooms?—EDS. A. AND B.J.]

District Surveyors and Their Fees.
To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—There is one part of your note on p. 421 that the most contentious of your readers will find hard to dispute—the absurdity of the scale of fees. A story is told of a certain society who wished to put in a new boiler at their headquarters. This necessitated cutting a hole in an external wall. Notice was given to the District Surveyor, the work was done, and his fee (£40) paid in full. Then it was found that the boiler was not suitable. Another notice, another hole, another £40. At the other end of the scale it often happens that the surveyor has to visit a building where a small alteration is being made many times a week for many weeks to watch a "shady" builder and then receive (?) a few shillings. Everybody expects the surveyor to reduce the fee when the work is slight, but

I have never heard of anybody offering to increase the amount when it is inadequate. But our chief concern is to have good surveyors, whether free-lances or salaried officials. Spare us from the worthy ass whose highest ideal is "to do his duty"! Reform building Acts by all means, but recognise that it is impossible to frame every clause to meet every emergency. Appoint the right man and give him discretionary powers. It seems to me that if we abolish fees we must be prepared to pay a salary of at least £1,000 a year for the junior posts or return to the old system of allowing a man to have a private practice.

Lincoln's Inn, W.C.

S. B. K. CAULFIELD.

Mr. Chiozza Money and the Building Industry.
To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Since in your issue of October 8th one of your readers signing himself "Builder" addresses a question to me, will you allow me to say that I respectfully decline his invitation to become a single taxer, and to add that if he imagines a single tax would help the building industry, I believe him to be greatly mistaken.

L. G. CHIOZZA MONEY.

Relative Value of Arch and Lintel.
To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—In Professor Henry Adams's reply to your correspondent, "M. R.," on page 413 of your issue for October 29th, there appear to be two assumptions which I cannot think are justified.

The first is that in a uniformly loaded arch the maximum compression will occur at the crown; the bending moment $\frac{W \times 72}{8}$ has been equated to 36 by 12 by

600, the product of the section area, the effective depth at the crown, and the uniform stress, the last being taken at its maximum safe value.

The horizontal component of the stress throughout the arch is constant, and as there is no vertical component at the crown, the total stress there will not be a maximum but a minimum, equalling this horizontal component.

The second assumption is that 600 lb. per sq. in. in an unreinforced concrete beam is a safe stress. The beam would surely fail by tension if no arch action is assumed, and as in tension 1 : 2 : 4 concrete will sometimes fail at 120 lb. per sq. in., 600 lb. seems rather excessive.

Kensington, W.

W. A. GREEN.

"Book-keeping for Architects."
To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Having noticed in your issue for October 29th a reply to an inquiry with respect to the above subject, I would strongly advise architects to shun the suggestion contained in "G.'s" closing sentence, which runs as follows: "If a practice is made of making all payments by cheque and paying all moneys received into the bank, even the cash-book may be dispensed with."

It is most necessary that a professional man should have proper books of account—simple yet complete—and that he should draw up a profit and loss account and balance-sheet at least once a year. The advantages of this procedure are many, but the following should be reasons sufficiently conclusive:—

1. The year's work is brought under review, and weaknesses are revealed enabling improvements and savings to be effected in the ensuing year.

2. The possibility of obtaining an assessment for income-tax upon actual results and a probable saving effected in the amount of duty payable.

3. The accumulation of accurate data to submit to any prospective purchaser, should the principal desire to retire and dispose of his business.

4. On the admission of a partner all doubts and disputes as to the value of the connection and business would be avoided, and a reasonable price or premium would be obtained from the incoming partner.

5. Should circumstances bring the architect into the Law Courts, and it is found necessary that he should produce statements of account in support of his evidence, a proper system of book-keeping would make such accounts not only immediately available but also readily accepted as evidence.

An architect, if he desires to be successful, cannot afford to neglect ordinary business care in the conduct of his practice, and one of the first essentials of success is to be able at all times to review one's finances and to stop all waste and losses at the earliest moment.

Bradford.

GEO. ELDER LEVIE.

Collective Bargaining.

To the Editor of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—May I add No. 5 to "C. H. B. Q.'s" little list? [See our issue for October 29th.]

It is—(5) drastic revision of existing building by-laws and building Acts.

These at the present time teem with anomalies and stupidities, and would appear to be a compound of fads culled from various humorous faddists. You can, indeed, find every kind of humour, from the constructive variety, which insists on steelwork calculated to $7\frac{1}{2}$ tons, with eccentric loads of meticulous accuracy, to the other extreme, which allows nearly what you please, so long as it just stands up.

There is jester hygienic, who, with sardonic subtlety, insists on an air grating just over your bath despite a normal window opening, apparently on the basic notion that ordinary humanity would rather be suffocated than open a window, or that hot baths should be taken in unavoidable cold draughts. (Mine is tightly blocked up with the by-laws of the Urban District Council of ———.)

Another delightful wag requires the provision of interceptors to each and every cottage, no matter how

unnecessary, and revels in the consequently inevitable stacks of galvanised vent pipes, *ad libitum et ad nauseam*.

I could continue, but refrain.

PECKSNIFF MINOR.

A MUTILATED MOTOR-HOUSE.

IN building, at Halifax, the garage of which two illustrations are here given, a slight deviation was made from the plans which had been passed by the Corporation. It was found that a considerable improvement would be effected by slightly projecting the eaves. This was accordingly done, and the Corporation officials objected, threatening prosecution unless the strict letter of the passed plans were adhered to. As it seemed incredible to the building owner that such an essentially frivolous and purely technical objection could be maintained, he refused to spoil the appearance of the building unless compelled to do so by a legal decision. The case came before the local Bench, who adjourned it for a month "in order to give the defendant an opportunity of complying with the by-laws." He was therefore compelled to ruin the appearance of his building in order to fulfil the strict letter of the law; with the effect seen in the second of the two illustrations. It is impossible not to sympathise with the building owner and his architects, Messrs. Joseph F. Walsh and Graham Nicholas, whose design has been thus barbarously mutilated in the interests of as paltry a piece of procrustean pedantry as we remember to have observed. It ought to be put beyond the power of local authorities thus to wrest by-laws to the public disadvantage, or to administer them with dull mechanical literalness instead of interpreting them with common-sense discrimination. The design having been ruined to the entire satisfaction of the Bench, the case against the building owner was dismissed. Perhaps it was dimly realised that to compel him to ruin the design of his building was punishment enough; but to involve the architects and the public in the chastisement is not a very direct means of securing adherents to the wholesome opinion that "the law's the true embodiment of everything that's excellent."



MOTOR GARAGE, HALIFAX: BEFORE AND AFTER MUTILATION.

THE CONDITIONS OF BUILDING AND ENGINEERING CONTRACTS.—VI.

Being an Explanation of the Clauses of the General Conditions of Specifications and the Legal Decisions affecting them.

SPECIALLY CONTRIBUTED BY E. J. RIMMER, M.Eng., B.Sc., A.M.Inst.C.E., of Lincoln's Inn and the Northern Circuit, Barrister-at-Law, and KENNETH G. THOMAS, B.A., LL.B. (Cantab.).

(Continued from page 429, No. 982.)

Paranthetical numbers in the text refer to cases noted at the end of each section.

CHAPTER IV.

TIME OF COMPLETION AND PENALTIES.

The clauses dealing with these matters generally contain provisions that the Contractor shall have delivery of the site and be at liberty to commence work upon a certain date, or that the Contractor shall commence work within a certain time after the delivery of the site and upon the receipt of a written order from the Engineer; that upon a given date or within a certain period from the fixed date or the date specified by the Engineer for commencement he shall complete and deliver up the works to the Building Owner; that the given period may from time to time be extended by the Engineer in writing for various causes; and that if the Contractor fails to complete the work within the given or extended period, as the case may be, he shall become liable to pay as liquidated damages to the Building Owner a fixed sum of money or a percentage sum of the contract price for every day, week, month, or other period occupied by him in completion of the work beyond the given or extended period. Sometimes a clause is inserted stating that time is of the essence of the contract.

These are the provisions which we shall now consider, and the most important of them to the building owner is that imposing upon the contractor the duty to complete the work under the contract within a given period, or on or before a given date. The failure to complete in that period is not a sufficient breach of the contract to enable the building owner to rescind the contract, and the contract usually expressly provides, in what is sometimes called the "penalty clause," what the rights of the building owner shall be in that event. If the contract contains no "penalty clause" the only remedy of a building owner in the event of non-completion within the contract period would be upon a claim for damages which would have to be assessed upon proof by him that damages had resulted from such failure to complete. This is not satisfactory to the building owner, because mere inconvenience to him is not a measurable or legitimate ground for a valid claim for damages: therefore, it is usual in all building contracts to insert a "penalty clause" in which the amount of liquidated damages which the contractor must pay per day, week, or month occupied by him in completing the work beyond the contract time is agreed between the building owner and the contractor. Such a clause will enable the building owner in the event of failure to complete within the period fixed, to recover the amount named therein as liquidated damages, if, in fact, such sum is liquidated damages and not a penalty. It must be borne in mind that a "penalty" is not recoverable in the Courts of Law, but that, on the other hand, the Courts will carry into effect an agreement to pay "liquidated damages." Thus, if the clause genuinely seeks to assess the loss which will arise from non-completion within the contract period, then, whether the amount be large or small, it will be in the nature of liquidated damages and therefore enforceable. On the other hand, if the in-

tention of the clause is merely to impose a fine or penalty upon the contractor and not to compensate the building owner, the clause will be unenforceable against the contractor, though the building owner will be enabled to recover from him the amount of damages proved to have been actually suffered. The rules which have been laid down in certain cases to test the true interpretation of this clause may be summarised as follows: (1) The Court will decide for itself whether a sum is *in fact* liquidated damages or a penalty, whatever it may be called in the contract; (2) the sum will be regarded as a penalty if the same sum is payable upon the non-performance of different conditions varying appreciably in importance; (3) the sum will be regarded as a penalty if it is payable in the event of failure to pay a smaller specified sum; (4) the sum will be regarded as liquidated damages and not as a penalty in cases where the actual damage or loss is uncertain and incapable of exact calculation and is payable upon the happening of a single event; (5) the criterion of whether a sum—be it called penalty or damages—is truly liquidated damages, and as such is not to be interfered with by the Court, or is truly a penalty which covers the damage, if proved, but does not assess it, is to be found in whether the sum stipulated for could or could not be regarded as a "genuine pre-estimate of the creditor's probable or possible interest in the due performance of the principal obligation." (33)

The chief grounds upon which the building owner loses his right to enforce the penalty clause are: (1) Delay in the commencement or the carrying out of the work occasioned by the building owner or his engineer; (2) failure by the engineer to exercise properly his powers to extend the time or (3) the ordering of new work entirely outside the contract work, for the completion of which there is no time agreed between the parties. (34)

(1) If there is no power given to the engineer or other person to extend the time for completion of the contract in certain events, any delay occasioned by the building owner or his agent will "waive" the penalty clause. This is illustrated by an old case. (35) The building owner failed to give to the contractor possession of the site until four weeks after the agreed time. The contract was not completed until five weeks after the contract time. It was held that the period of completion was not merely moved forward by a period equal to the delay in commencement, but that the penalty clause was entirely invalidated on the ground that the original contract applied only to the given and fixed period agreed upon in such contract. Similarly in another case delay in the supply of plans and setting out the land was held to invalidate the penalty clause. (36)

Delay in carrying out the work is frequently occasioned by the ordering of extra or additional work. If there is no clause providing for the extension of time in this event, the ordering of extra work will cause the loss of the right to deduct liquidated damages from the contract price (37), unless it be the intention of the

contract that the original work, *together with any alterations and extras ordered by the building owner* shall be completed within the given period, in which case the effect of the penalty clause will not be invalidated by ordering extra work. (38)

From the foregoing the necessity of inserting in all engineering and building contracts a clause, empowering the engineer or other person to extend the time will be clear, and it is evident that such a clause should be an extremely comprehensive one, covering all possible causes of delay, because any delay caused by the building owner or his agents for which the engineer or other person named in the contract has not power to extend the time will invalidate the penalty clause. If the provision is to cover possible delay in the commencement of the work it ought to state so in unambiguous terms. The expression "other causes beyond the contractor's control" has been held insufficient to include delay in commencement due to defaults by the building owner, and therefore such delay was held to invalidate the penalty clause. (39)

(2) The effect of a provision giving powers to extend the time is to reserve the right to enforce the penalty clause if the contractor fails to complete within the *extended* period, but it must be remembered that the discretion of the engineer to extend the time for completion may be lost by the unreasonable interference of the building owner or the engineer in the construction of the work. (40) Moreover, where the building owner orders extra work so as to render the performance of the contract impossible, for which extra work the engineer makes no extension under his powers, he is not entitled to deduct a sum for liquidated damages. (41) Also, if the power to extend the time is not exercised by the engineer it may be successfully contended that the penalty clause has been waived and, "if the engineer gives a final certificate without allowing any deduction for penalties it will be presumed that he has extended the time unless it is proved or admitted that the matter has not been determined by him or was not expressly or implicitly within his jurisdiction." (42)

Subject to these decisions, on the other hand, if the engineer, without fraud or misconduct, in the exercise of his discretion, refuses any extension of time, or makes an extension not satisfactory to the contractor or building owner, his decision cannot be challenged. At the same time, it must be remembered in this respect that any act by the engineer which is used for the purpose of defeating the contractor's rightful claims under the contract, though not originally arising from a fraudulent motive, constitutes a fraud. (43)

(3) The ordering and execution of work entirely outside the contract work may constitute a new agreement, to which none of the conditions of the original contract apply, so that the effect of the penalty clause is destroyed. For example, in one case the contractor agreed to build certain houses by a certain day subject to a penalty clause for non-completion. Before this date, however, it was agreed between

the parties that the contractor should build other houses within a reasonable time. It was held that, as the work under the second agreement was so mixed up with the work in the original agreement, the second agreement operated as a waiver of the stipulation as to time in the first agreement, and that the condition of completing within a reasonable time applied to the whole work. (44)

It is important to notice that the Public Health Act, 1875, Sec. 174 (2) provides that the contract of an urban authority under the Act must specify "the work, materials, matters, or things to be furnished, had or done, the price to be paid, and the time or times within which the contract is to be performed, and shall specify some pecuniary penalty to be paid in case the terms of the contract are not duly performed."

It was formerly held that this provision was mandatory, and that where such penalty was not specified an action on the contract against the urban authority could not be enforced. (45) It was, however, decided by the Court of Appeal in 1905 that the provision is directory only, and therefore not essential to the validity of the contract. (46)

In regard to the provision that "time is of the essence of the contract," it would appear that as the other time clauses make provision for the remedies of the building owner in case of non-completion within the contract time it cannot be intended that non-completion will by reason of this clause give the building owner any other rights than those he already has. (See, however, "Forfeiture," Chapter VII.)

Cases referred to in the Text :

- (33.) *Commissioners of Works v. Hills* (1906) 22 T.L.R. 589.
 (34.) *Holme v. Guppy* (1838) 3 M. & W., 387.
 (35.) *Roberts v. Bury Commissioners* (1869) L.R. 5 C.P. 310.—Delay by the architect in the supply of plans and drawings, the setting out the work, and giving instructions to enable the contractors to carry out the work, was alleged. There was power in the contract for the architect to extend the time but the architect made no extension under this power. It was held that the architect's default was the breach of contract by the defendants which prevented them from putting into operation the forfeiture clause, and that the contractor was not obliged to accept whatever extension of time the architect was pleased to make.
 (36.) *Dodd v. Churton* (1878) 1 Q.B., 562.—A building contract provided for by the execution of certain specified works and of any additional works that might be ordered by the building owner. The whole of the works were to be completed by a specified date under certain penalties, as liquidated damages for delay beyond that date. There was also a provision that the additional works should not vitiate the contract. The building owner subsequently ordered additional works, with the necessary result that the builder was unable to complete by the stipulated date. Held, that upon the true construction of the contract the builder had not bound himself to complete both the specified and the additional works by the stipulated date, and the building owner had deprived himself of the right to claim the penalties provided for in the contract.
 (37.) *Jones v. St John's College, Oxford* (1870) L.R. 6 Q.B., 115.—The contractors agreed to complete certain work together with any alterations contemplated by the contract within a fixed time unless the extension of time was allowed by an order of the clerk of works. Additional work was ordered, but the clerk of works made no extension of the time. Held, that the contractor must pay penalties for delay.
 (38.) *Wells v. Army and Navy Stores* (1902) 2 H.B.C., 376.—In this case there had been delay in giving the contractor possession of the site and in supplying working plans and details, in addition to considerable interference by the architect. The board of directors was empowered by the contract to make due allowance for delay by reason of any alteration or addition to the works, by strikes, by default of sub-contractors "or by other causes beyond the contractor's control." It was held by the Court of Appeal that this latter expression did not include the aforementioned delays.
 (39.) *Lawson v. Wallasey U.D.C.* (1883) 11 Q.B.D., 229.—The plaintiff entered into a contract with the defendants to remove 10,000 cubic yards of the bed of the Mersey contiguous to Seacombe Ferry for £5,000, and to completely finish the work under the directions and to the satisfaction of the defendants' engineer by the 1st October, 1878, subject to such an extension of time as the engineer might think reasonable, in case a temporary staging, then erected on the site of the work, should not be removed within such a time as would enable the plaintiff to complete the work by the 1st October, 1878. There was also a clause in the contract providing that if any difference should arise between the local board and the contractor concerning the work contracted for, or concerning anything in

connection with the contract, such difference should be referred to the engineer, and his decision should be final and binding on the local board and the contractor. The contractors disputed the allowance made to them by the engineer for the delay caused by the building owner. Held, (i) That on the true construction of the contract the defendants were liable to an action for not causing the staging to be removed within a reasonable time, and (ii), that the clause referring differences to the engineer could not be set up in answer to the action.

(40.) *Westwood v. Secretary of State for India* (1863) 7 L.T. 735.—The engineer had power to extend the time for completion but did not exercise it, although the defendant had ordered extra work. It was held that the defendant in ordering extra work had by his own act rendered the performance of the contract impossible within the stipulated time, and that he was not, therefore, entitled to set off penalties, although there had been no extension of time by the engineer.

(41.) *Russell v. Sada Bandiera* (1862), 13 C. 13, N.S. 149.—A ship was not completed until long after the date fixed for completion, but it was proved that a large portion of the delay was due to interference of the defendant in the course of its building. The engineer made no extension of time under his powers in the contract. Held, that no penalties were recoverable.

(42.) *British Thomson Houston & Co. v. West* (1903) 19 T.L.R., 493.—Mr. Justice Phillimore quoted with approval the following extract from Mr. Hudson's work on Building Contracts:—

"If the architect gives a final certificate without any deduction for penalties it will be presumed that he has extended the time, unless it is so proved and admitted that the matter has not been determined by him or was not expressly or implicitly within his jurisdiction."

In the case before him, however, he held that the facts of the case did not establish a jurisdiction of the engineer in the matter of extending the time for completion.

(43.) *MacIntosh v. Great Western Railway* (1850) L.J. Ch. 374, per Lord Chancellor, at p. 375.

(44.) *Thornhill v. Neats* (1860) 8 C.B.L.V.S., 831.

(45.) *British Insulated Wire Co. v. Prescol Urban District Council* (1895) 2 Q.B., 463.

(46.) *Soothill Upper Urban District Council v. Wakefield Rural District Council* (1905) 2 Ch., 516.

ARCHITECTURAL SCHOLARSHIPS IN INDIA.

The recommendation made at a conference of Orientalists held at Simla more than two years ago, that the Indian Government should do something to promote the study, by Indians, of the principles and practice of architecture, has just materialised. Orders have been issued intimating that three architectural scholarships, each of £80 a year, and tenable for three or, in exceptional cases, for four years, will be granted to natives of India qualified to attend the architectural class at the Jamsetjee Jeejeebhoi School of Art in Bombay. At the close of their training the scholarship holders will be offered, if they show aptitude, salaried posts in the architectural department of the administration. Each of the provincial Governments will be asked to nominate candidates, from whom the selection will be made by a central board.

NEW FARM COLONY, ROYAL ALBERT INSTITUTION, LANCASTER.

This new colony has been established for the training in agriculture and kindred occupations of feeble-minded boys of the northern counties. It was opened on October 21st by the Countess of Derby.

The buildings are erected in a very substantial manner of local stone rubble walling, with fine tooled dressings, the internal walls being of brick. The roof is slated. The site is pleasantly situated on the sunny slope of a hill, slightly to the westward of the present farm buildings and bailiff's house.

The accommodation is as follows: On the ground floor, wide vestibule and entrance hall, with reception room and lavatories to the right and large day-room to the left. This room is airy and well lighted, containing every convenience for the comfort of the lads, part of it being planned as an embayment for meals. Adjacent to this room is the kitchen department, with large scullery, store rooms,

larders, etc., and complete modern cooking installation.

On the first floor, which is approached from the hall by a wide and easy stone staircase, there is the following accommodation: Wide and roomy landing with large dormitory to the left, containing forty beds, with proper provision for escape in case of panic or fire, by means of a broad iron staircase leading directly down to the grounds.

On the opposite side of the landing are attendants' rooms with observation windows into dormitory, also bath-rooms, lavatories, etc., with complete and up-to-date sanitary arrangements. Additional store rooms for clothes, etc., are provided on the second floor, and in the basement are heating chambers and fuel stores.

The buildings were designed and their construction supervised by Messrs. Woolfall and Eccles, F.F.R.I.B.A., of Liverpool.

SOME RECENT WILLS.

Mr. William John Oliver, architect, of Wolverhampton, who died on August 28th, left estate of the gross value of £906 14s. 6d., of which £780 19s. 11d. is net personality.

Mr. James Lee, of Nottingham, builder, who died on September 10th, aged eighty-two years, left estate of the gross value of £5,377 18s. 10d., of which the net personality has been sworn at £757 14s. 2d.

Mr. Orson Wright, of Ashbourne House, Blaby Road, South Wigston, Leicestershire, builder and contractor, senior partner in the Wigston Hat Company, chairman of the Grand Hotel, Leicester, Ltd., and of the Wigston Gas Company, who died on April 10th, aged fifty-nine, left estate, "so far as at present can be ascertained," of the gross value of £167,281, of which the net personality has been sworn at £17,991.

PROPOSED LIMITATION IN HEIGHT OF NEW YORK BUILDINGS.

The Fifth Avenue Association of New York has presented to the Building Heights Commission a statement regarding the height, size, and arrangement of buildings, which deals at length with the objections, dangers, and disadvantages of very tall buildings in business streets. It concludes with the recommendation for legislation which would restrict the height of buildings on Fifth Avenue and within an area of 300 ft. east and west of the avenue to 125 ft. to the cornice line, with not more than two mansard roof stories additional, the restriction not to apply to steeples, domes, towers, or cupolas of fire-proof material erected for ornament.

Appended to the statement is a list of twenty-five cities in the United States and thirteen cities in foreign countries which restrict the height of buildings as follows:

1. To a flat height varying from 80 to 200 ft. or up to twelve storeys.
2. Proportional to the width of the street and varying from one to two and one-half times its width.
3. Regulated by drawing a line upward at an angle from the edge of the premises of the opposite side of the street.
4. Based on the character of construction, or according to the zone system.
5. Proportional to the average of horizontal dimensions.

In foreign cities the flat-height limit varies from 43 ft. in Zurich to 150 ft. in Sydney.

THE RISE OF RENAISSANCE ARCHITECTURE IN ENGLAND.*

BY A. E. RICHARDSON.

(Concluded from page 415, No. 981.)

DURING his time, Inigo Jones greatly improved the internal aspect of the theatre, among other innovations curtailing the stage, which hitherto projected into the auditorium, and framing the scene by means of a gigantic frame, such as is employed in modern theatre design; and in the case of lighting effects he revolutionised the somewhat primitive style of hanging candles and sparsely placed footlights.

In 1615 Inigo Jones succeeded Simon Basil as Surveyor-General of the Works, and in the same year prepared a model for a new Star Chamber as well as beginning the Queen's House at Greenwich. The Chapel of Lincoln's Inn was begun at this time, and consecrated in 1623. This building shows the architect's regard for the last phases of Gothic art, and the Tuscan columns carrying the crypt vaulting prove his abortive attempt to blend two distinct traditions. The Church of St. Catherine Cree (1628-1630) has been attributed to him, but no direct evidence of this is forthcoming. The church of St. Alban's, Wood Street, is known to have been from his design. This building was destroyed in the Great Fire of 1666. In the year 1617 a petition was presented to the court of King James I. praying for control in the (building) encroachment on Lincoln's Inn Fields. A commission was appointed in 1618, with Inigo Jones, then Surveyor-General, as one of the commissioners. This commission, like most Royal commissions, proved fruitless. Careful investigation of the records does not show any connection between the erection of the houses on the west side and the ground plot prepared by the architect. An eighteenth-century picture at Wilton House, shows the houses forming the west side, with the Tudor rose and fleur-de-lys enrichments, and a view by Hollar made during the seventeenth century, entitled "Prospect of Lincoln's Inn Fields," suggests the architectural influence of one well versed in the style exploited by Inigo Jones.

Reference must be made to the design of the two houses in Great Queen Street, which are known to have been designed by John Webb, and it is more than probable that he was the author of those fronting Lincoln's Inn Fields.

Shaftesbury House, Aldersgate Street, now demolished, is another example of his style. Cromwell House, at Highgate, is also representative of the period.

In the year 1619 he was ordered to design the new Banqueting House at Whitehall. An account of these drawings, and the evolution of the design, has been set forth in an admirable paper by Mr. J. Alfred Gotch. In this paper Mr. Gotch demonstrated that the design of the Banqueting Hall, as it now stands, is complete, the scheme for the great palace being an after consideration. Many of the drawings at Chatsworth for this scheme, however, are identified as being the work of his pupil, John Webb. Considering the influences then at work, it appears the more remarkable to contrast the refined beauty and composition of the Banqueting Hall with such buildings as Burghley Hall, near Stanford, or Hatfield House. On the one hand is seen a picturesqueness of outline and, on the other, an enlarged intellectual grasp of real architectural values.

* Concluding part of the first of a series of lectures now being given at University College, Gower Street.

In the masterly plan for the complete scheme of the Palace of Whitehall is revealed a complete vindication of the return to Classic models. There is apparent the influence of the great scale of the Roman *Thermae* and other classic buildings which the architect had carefully studied.

The work was started in haste in 1619, and the Banqueting Hall completed by March 31st, 1622, at a cost of £15,653 3s. 3d. (some accounts £17,000). Between the years 1630 and 1640, the scheme for the completion was revised by Charles I., but the disastrous Civil dispute put a stop to the realisation of this glorious design. Had this scheme been carried to completion, English architecture would have been elevated to a much higher plane than it occupies at the present time.

By 1630 King Charles I. had entered into competition with his courtiers to acquire antique objects of art. There is extant a letter from the King to his Admiral, Sir Kenelm Digby, instructing him to proceed to the coast of Greece to ship statuary. From this fact, as well as the more tangible one of the Arundel collection, we are enabled to fix the earliest date at which Englishmen extended their travels beyond Italy to Greece.

In 1626 Inigo Jones designed the Water Gate at York Stairs, which formed the entrance to Old York House (the carving for this structure was executed by Nicholas Stone), and at the same time the Gateway in Oatlands Park for Lord Weymouth, which was demolished thirty years ago.

In 1631 Jones designed and erected the Church of St. Paul's, Covent Garden, in the so-called Tuscan manner; the columns are really Roman Doric, with a boldly projecting eaves cornice. This building was termed by the architect to be the handsomest barn in London. In 1795 the building was burnt to the ground, but was restored with great exactitude by Thomas Hardwick. In addition to making extensive repairs at old St. Paul's Cathedral, Inigo Jones added the magnificent West Portico shown in Hollar's etching.

The works at Greenwich were begun by Inigo Jones and Webb, but the masterly completion of the design was undertaken by Sir Christopher Wren. The Chapel of Old Somerset House was finished from the architect's designs in 1637, and in the following year he prepared designs for additional works. The front of the County Fire Office at the foot of the Quadrant, designed by John Nash in 1817, is practically a replica of the design by Inigo Jones for the front of Somerset House. All trace of the original buildings disappeared when Chambers built the present Government Palace. Portions of West Woodhay Manor House have been attributed to Jones.

In the Library of Worcester College is a drawing of the Barber Surgeons' Hall in Monkwell Street, now destroyed. This building, with the oval lecture theatre, was in all probability designed by Jones.

The south side of Wilton House was built from the designs of Inigo Jones, under the superintendence of John Webb, about the year 1649, the chief feature of the interior arrangement being the double cube room, 60 ft. by 30 ft. by 30 ft., with panelling designed by the architect to receive Vandyck's portraits. The Banqueting Hall at Whitehall is also a double cube room, 55 ft. by 110 ft.

Raynham Hall, Norfolk, is an instance of his remarkable versatility in the design of country mansions, and considering that its erection is separated by only a few years from the building of the mansion attributed to John Thorpe, it is a building distinctive in every way.

Coleshill House, in Berkshire, built in 1650, is a very late example of his manner; its design shows the increasing mastery he obtained in dealing with problems of architectural composition.

Castle Ashly, Northamptonshire, was begun by Inigo Jones, but its erection was interrupted by the Civil War. There is no authority for his authorship concerning Stoke Park, Northamptonshire. This design, it is stated, was brought direct from Italy by Sir Francis Crane, but some authorities discern the hand of John Webb.

The staircase and ovula at Ashburnham House, Westminster, were carried out from Inigo Jones's drawings by John Webb.

Inigo Jones died on June 21st, 1652, and was buried in the Church of St. Benet Paul's Wharf, a church rebuilt by Sir Christopher Wren after the great fire. He was not only the forerunner of the Classic school of English architects, but he must be considered as one of the most accomplished of them all. The period of his influence was ripe for the adventure into the realms of Classic; the concurrence of the man and the moment was propitious. He became the interpreter, so to speak, for the wealthy patrons who desired their magnificence expressed, and at one blow crystallised a fleeting tradition into a definite style. It would be a mistake to say that he completely mastered all the intricacies of the stupendous art of architecture—no single individual can ever do that—but he raised the standard of the monumental in building for all time. We must not overlook the fact that Inigo Jones borrowed from Italy and Old Rome; but, to quote the words of Sir Joshua Reynolds relating to such borrowing, he paid back with interest.

Considering the vast amount of building undertaken by Inigo Jones, there can be but little doubt that he employed a staff of draughtsmen to interpret his ideas. John Webb, however, is the only name known in this connection. The ensuing period of the Commonwealth was singularly devoid either of architecture or architects, but in the slender connection between the architecture of Jones and Wren the work of Webb, Gerbier, and Talman forms a link.

In 1653 Webb designed some mantelpieces for Drayton. Ashdown Park, Berkshire, is perhaps his finest composition.

Webb was content to work in the monumental manner as a follower of the theories expounded by Jones. He was conscientious, and showed restraint in all his designs.

Improvements at Canadian Royal Residence.

During the absence of the Duke of Connaught from Canada, Rideau House, the Royal residence, has been undergoing extensive improvements. A Royal coat of arms, 14 ft. high by 6 ft. 8 in. long, has been carved over the porch, and a new wing, containing forty-two rooms, has been added. All told, the improvements have cost over £40,000.

PROJECTED NEW WORKS.

Houses, Rhos, Denbigh.

Wrexham R.D.C. have decided to build working-class houses at Rhos.

Wesleyan Church, Colburn.

Plans have been passed for a new Wesleyan Church at Colburn, near Richmond, Yorks.

Municipal Offices, Stepney.

Stepney Borough Council are considering a scheme for the erection of new municipal offices.

Y.M.C.A. Building, Ayr.

A new building for the Y.M.C.A., Ayr, is shortly to be erected from designs of Mr. Stewart Kaye, Dunfermline.

Workhouse Extension, Walsall.

A proposal to erect a new block for men at Walsall Workhouse has received the approval of the Board of Guardians.

Baths, Paddington.

Paddington Borough Council are considering a scheme for the erection of new baths at an estimate of £45,000.

Church, Newcastle.

It is proposed to erect a new United Methodist Church on a site in Whitfield Road, in the west end of Newcastle.

Secondary School, Barking.

Barking U.D.C. have obtained a site in Longbridge Road upon which it is proposed to erect a new secondary school.

Workhouse Improvements, Berwick.

Berwick Guardians have approved an amended scheme of improvements to the workhouse, estimated to cost £4,000.

Premises, Kilmarnock.

The Saxone Shoe Co. propose to erect buildings in Titchfield Street and Douglas Street, Kilmarnock, at a cost of £2,000.

Swimming Pond, Paisley.

Paisley Corporation propose to add a new swimming pond to their Storrie Street Baths. Plans are being prepared by Mr. Jas. Lee.

Picture House, Dumbarton.

Plans have been passed by the Dumbarton Dean of Guild Court for the erection of a large modern picture house in the High Street.

School, Mansfield Woodhouse.

Nottingham County Council propose to provide a new public elementary school in the above district to accommodate about 500 children.

Cottages, Gillingham, Kent.

On the application of Mr. E. J. Hammond, Gillingham (Kent) Council have approved the erection of seven cottages in Layfield Road.

Housing Scheme, Portsea.

Portsea Health Committee are asking the sanction of the L.G.B. to a loan of £8,580 for the erection of forty-three municipal houses.

Masonic Hall, Doncaster.

Plans have been prepared for a new Masonic Hall at Doncaster, which it is proposed to build at a cost of between £5,000 and £6,000. The site is at the corner of Priory Place and Printing Office Street.

Cottages, Hammersmith.

It is proposed to proceed with the erection, at a cost of £3,800, of fourteen extra cottages on the western section of the Old Oak Estate, Hammersmith.

Newport Bridge Extension.

Newport Town Council have decided to promote a Bill in the next Session of Parliament for the reconstruction of Newport Bridge and its approaches.

Fire Station, Tredegar.

A recommendation has been adopted for the purchase of two houses in Harcourt Terrace, upon the site of which it is proposed to erect a new fire station.

Wandsworth Bridge.

Wandsworth Borough Council have recommended the adoption of a scheme for the rebuilding of the above bridge, which is estimated to cost £34,350.

Workmen's Dwellings, St. Austell.

The L.G.B. have held an inquiry into an application by the St. Austell U.D.C. to borrow £5,146 for the purpose of erecting working-class dwellings.

Training Institute, Nottingham.

Nottingham Board of Guardians have decided to erect, at an estimated cost of £5,350, a new training Institute on the Hartley Road site. Mr. E. R. Sutton is the architect.

Hospital Accommodation, Barrow.

Barrow Town Council have received the sanction of the L.G.B. to the borrowing of £5,460 and £540 for the purpose of providing additional accommodation at the infectious diseases hospital.

Dwellings, Seaham Harbour.

A Local Government Board inquiry has been held at Seaham Harbour into the application of the Council for sanction to borrow £9,577 for the purchase of land and the erection of forty-five working class dwellings.

Shelter, Westcliff-on-Sea.

To meet the growing demand for increased accommodation at the bandstand on the cliffs, Westcliff Town Council are considering the advisability of erecting a large shelter, adjacent to the band enclosure, capable of accommodating about 2,000 persons, at a cost of £4,000.

Hospital Extensions, Swansea.

At an estimated cost of £8,350, building works, including the renovation of the Llewelyn Ward and offices and the extension of the north wing, are shortly to be carried out at Swansea Hospital. Mr. Glendinning Moxham is the architect.

Flats, Brompton, Kent.

Gillingham Council have approved working drawings of eight flats proposed to be built in Wood Street, Brompton, under the Housing of the Working Classes Act. Specifications and bills of quantities are to be prepared and tenders invited for the work of construction.

Public Offices, Shipley.

Shipley District Council have decided to proceed with a scheme for the erection of new public offices on the Manor House Estate. The cost of the buildings, exclusive of electric lighting, furnishing, and heating, is estimated at £10,500. Architects are to be invited to submit competitive designs.

Various Works, Barnoldswick.

A Local Government Board enquiry has been held into applications by the Barnoldswick U.D.C. for sanction to borrow the following sums of money: £1,160 for waterworks, £2,400 for sewerage, a growing colony in the Gisburn Road district, and £2,460 for a new fire station.

Various Works, Bradford.

Plans have been passed by the Bradford Corporation for sixteen houses at Broomroyd Hill Road, for Mr. F. Briggs; seven houses at Intake Road, Undercliffe, for Messrs. Cansfield and Sons; a degreasing works at Harrogate Road, Apperley Bridge, for the Degreasing Company, and a reed and heald works at Bryanstone Road, for Mr. J. W. Turner.

Belfast Harbour Developments.

The Belfast Harbour Commissioners have decided to expend a sum of £45,000 in the erection of new wharves and jetties in the Musgrave Channel, adjacent to Queen's Island, for the fitting out of new vessels after they are launched. The expenditure is in addition to the sum of £70,000 which the Commissioners some time ago agreed to spend in the construction of a new deep-water wharf.

London.

The L.C.C. have consented to the erection of the following works: An addition to Cadby Hall, on the northern side of Hammersmith Road, Hammersmith, on the application of Messrs. Holman and Goodrham, on behalf of J. Lyons and Co., Ltd. A building at the south-eastern corner of Bayham Place, St. Pancras, on the application of Mr. H. Branch, on behalf of Messrs. Boosey and Co. An additional storey over the rear of 43, Chepstow Place, Kensington, on the application of H. W. Crook and Son, Ltd.

Various Buildings, Aberdeen.

Plans for the following new buildings in Aberdeen have been approved: Motor garage at the rear of 90, Queen's Road, per Harold G. Brown; two dwelling houses on the east side of George Street, per Mr. John Milne, architect; garage on the south side of Rosebank Terrace, per Mr. Harvey Mennie, architect; alterations and additions in connection with premises on the east side of St. Nicholas Street, for Messrs. James Kinghorn and Son, drapers, per Mr. George B. Mitchell, architect; garage at the rear of 23, Westburn Drive, per Mr. George Watt, architect; picture house on the south side of Union Street, for the Provincial Cinematograph Theatres, Ltd., London, per Messrs. Wilsons and Walker, architects; picture house on the north side of Union Street, for Mr. Henry Ross, Aberdeen, and Messrs. V. Behar and W. H. Baxter, Glasgow, per Mr. Clement George, architect.

New Military Buildings for Salisbury Plain.

The War Office has finally decided to remove the School of Gunnery from Shoeburyness; a site has been selected on Salisbury Plain for the purpose of the new school, and this will shortly be cleared of buildings for an early beginning of the work. In addition to the School of Gunnery, barracks will be built for the accommodation of an experimental battery. Two field ranges for horse and field batteries respectively are already near at hand. The site for the new Gunnery School is to the south of Knighton Down, near where the aviation sheds were erected by the War Office, in conjunction with the buildings of the Bristol Flying School. The building of military headquarters for the Southern Command at Salisbury will also be begun next year. A new site has recently been secured adjoining the present temporary headquarters at Fisherton, the proposal to build the headquarters at Harnham, a suburb of the city, having been abandoned. Altogether about £95,000 is involved in the two building schemes.

THE MAPPIN TERRACES AT THE ROYAL ZOOLOGICAL GARDENS.

We give on this and the opposite page some further illustrations of the new reinforced concrete terraces now in course of construction at the Royal Zoological Gardens, Regent's Park, from the designs of Messrs. John Belcher, A.R.A., F.R.I.B.A., and J. J. Joass, F.R.I.B.A. The main

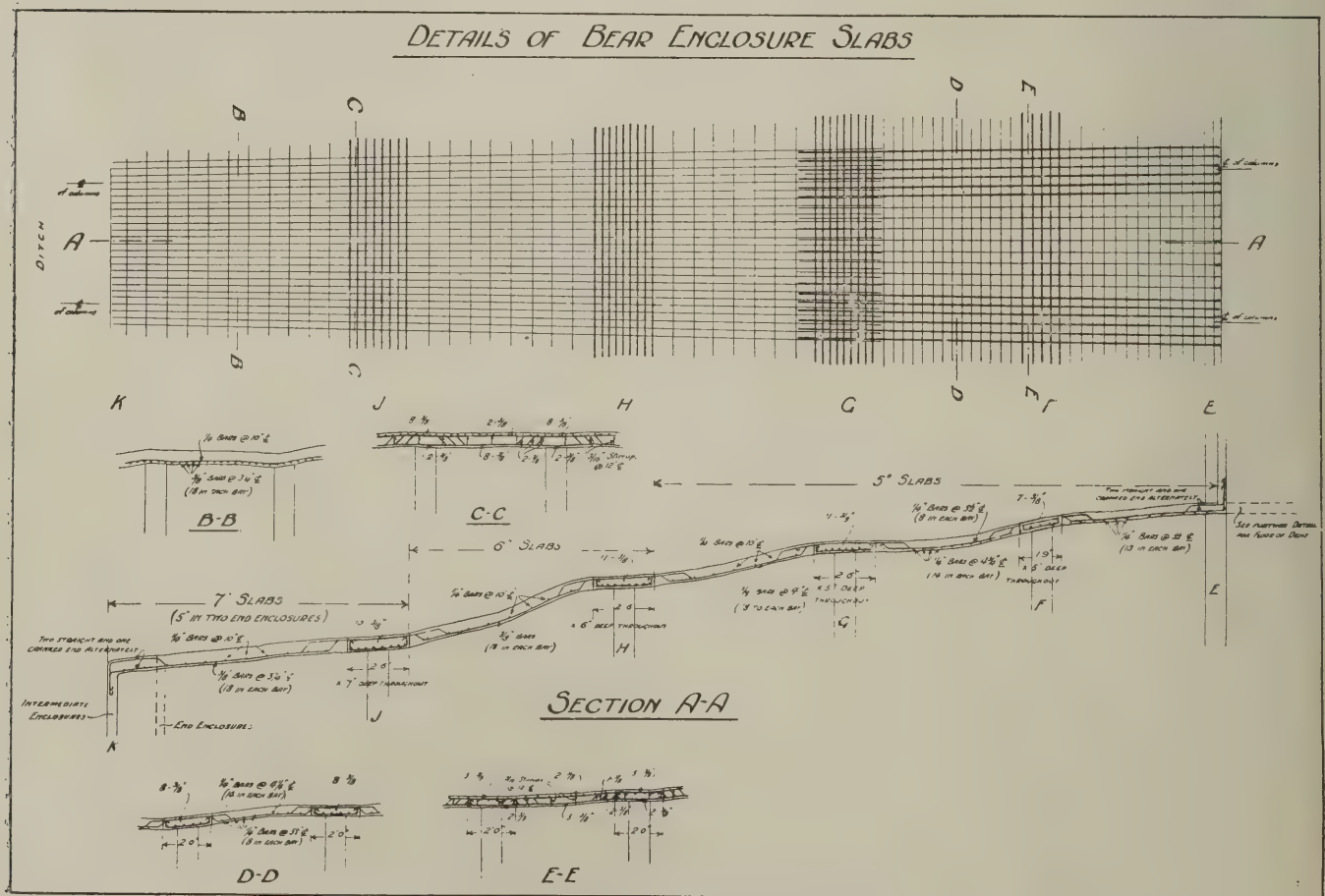
idea of these terraces, as explained in last week's issue, is to give more freedom to certain animals. The bear enclosures, of the slabs of which we illustrate a constructional drawing, are six in number, each being roughly 48 ft. by 46 ft. in dimension. These enclosures are divided from the first or lower public terrace by a ditch, 13 ft. wide by 13 ft. deep, which effectually prevents the bears from escaping, and at the same time allows a clear view of the

animals to be obtained.

Main staircases start from each end of the elevated terrace, rising in easy flight to the topmost terrace, which forms the base of the hills proper. The construction of one of these staircases—that on the west side—is shown in an accompanying illustration. The work, which is wholly in reinforced concrete, is being carried out by Messrs. D. G. Somerville and Co., Ltd., of Westminster.



View of Terraces in Course of Construction.



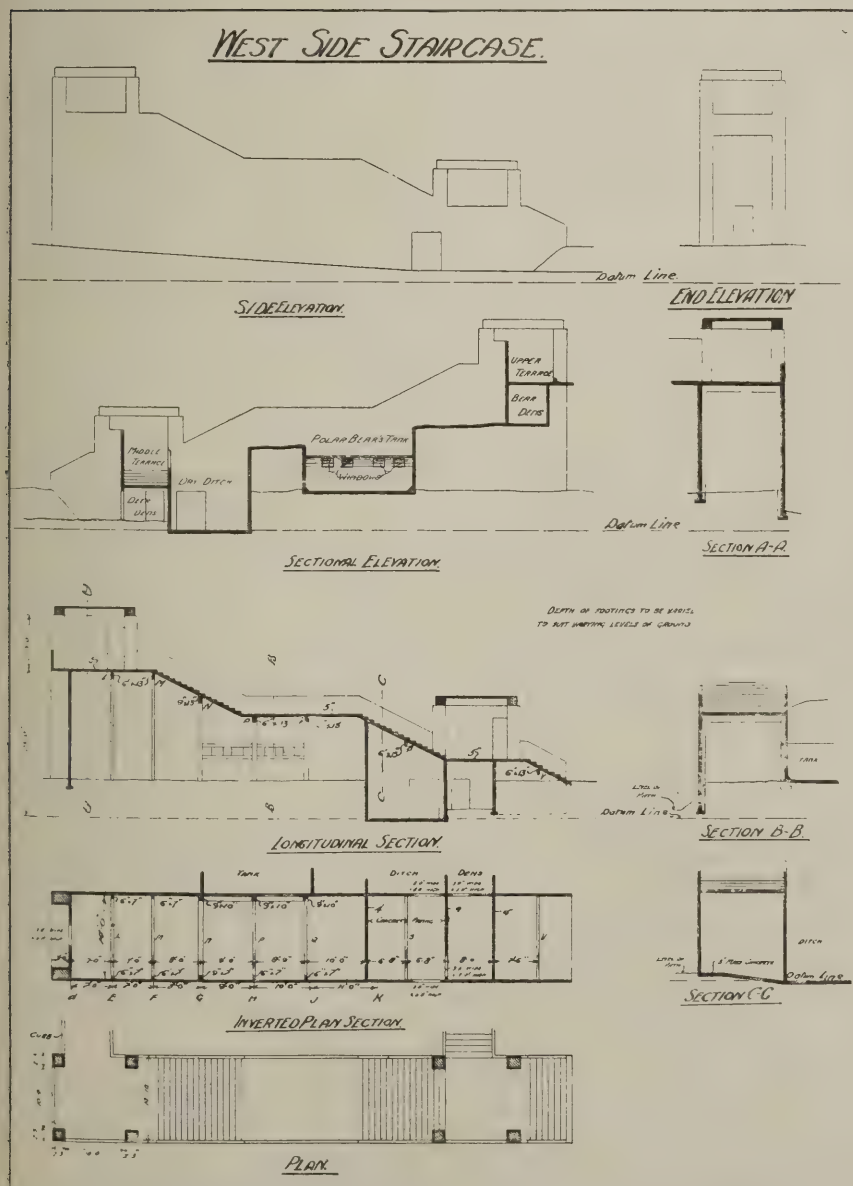
THE NEW MAPPIN TERRACES AT THE ROYAL ZOOLOGICAL GARDENS. JOHN BELCHER, A.R.A., F.R.I.B.A., AND J. J. JOASS, F.R.I.B.A., ARCHITECTS.

SOCIETIES AND INSTITUTIONS.

THE ARCHITECTURAL ASSOCIATION.

At the opening meeting of the Architectural Association the prize awards for the session 1912-1913 were made as follows:

- Banister Fletcher Bursary, D. E. Cruickshank.
A.A. Travelling Studentship, A. S. G. Butler.
Andrew Oliver Prize (2nd place, A.A. Travelling Studentship), W. W. Locke.
Saxon Snell Scholarship, R. M. Pigott (£30), R. C. Clark (£20).
Herbert Batsford Prize, Piet de Jong.
History Prize, 1st Year Day School, and Freehand Prize, 1st Year Day School, W. H. Lloyd.
Construction Prize, 1st Year Day School, F. P. M. Woodhouse.
Studio Prize, 1st Year Day School, and Vacation Work Prize, 1st Year Day School, F. A. Eschawzier.
Special Prize given by Mr. H. P. G. Maule, 1st Year Day School, N. F. C. Day.
Travelling Studentship, 2nd Year Day School, and A.A. Two Years' Certificate, J. Burford.
Special Prize given by Mr. H. P. G. Maule in connection with Travelling Studentship, A.A. Two Years' Certificate, A. Stanhope Forbes.
End of Session Study, 2nd Year Day School, Special Prize given by Mr. H. P. G. Maule, A.A. Two Years' Certificate, M. T. Waterhouse.
Travelling Studentship, 3rd Year Day School, and 2nd Prize Test Subject, 3rd Year Day School, R. S. Wallace.
Winner of Jarvis Scholarship, value £40; Second Prize, 3rd Year Day School Travelling Studentship; Prize, Materials Lectures; Prize, Hygiene Lectures, H. J. H. Dicksee.
First Prize, Test Subject, 3rd Year Day School and Prize, Intermediate Construction, R. Haig Philp.
Prize for greatest progress, 3rd Year Day School, and Prize, Advanced Construction, H. J. Tebbutt.
Second Prize for Progress, 3rd Year Day School, F. A. Addey.
First Prize, 1st Year Evening School, and Prize, Ren. Architecture, E. A. D. Tanner.
Second Prize, 1st Year Evening School; Prize, Elem. Physics; Prize, Elem. Construction; Prize, Greek and Roman, L. Claydon.
Scholarship, 2nd Year Evening School, Free Pass to 3rd Year, Prize, Med. Architecture, H. A. N. Medd.
Travelling Studentship, 4th Year Evening School, and Certificate, Board of Archl. Educ. (4 yrs), D. J. Gordon.
First Prize, 4th Year Evening School, J. B. M. Walch.
Prize, Med. Architecture, A.A. Two Years' Certificate, B. George.
Prize, Steel Construction, A. S. Burnett.
A.A. Two Years' Certificate, P. Butt.
A.A. Two Years' Certificate, C. J. Brooks.
A.A. Two Years' Certificate, J. H. Jacob.
A.A. Two Years' Certificate, A. S. Furner.
A.A. Two Years' Certificate, D. C. L. Derry.
A.A. Two Years' Certificate, H. F. Gosling.
A.A. Two Years' Certificate, M. D. N. Koch.
Board of Architectural Education Certificate (4 years), H. D. Archer.
Board of Architectural Education Certificate (4 years), A. B. L. Roberts.
Board of Architectural Education Certificate (4 years), H. Fellows Pryne.
Board of Architectural Education Certificate (4 years), W. Harkess.
Board of Architectural Education Certificate (4 years), T. W. Dowsett.



THE NEW MAPPIN TERRACES AT THE ROYAL ZOOLOGICAL GARDENS.

EXETER DIOCESAN ARCHITECTURAL AND ARCHÆOLOGICAL SOCIETY.

The above society recently visited the remains of S. Nicholas' Priory, Exeter, and of S. Catherine's Priory, Polsloe. Under the guidance of Mr. J. L. Tonar, who has charge of the repairs now being carried out at S. Nicholas' Priory by the new owners, the Exeter City Council.

Much of the work at Polsloe is similar in style and construction to that of S. Nicholas, as well as the later work of those who adapted and embellished the buildings with oak panelling, after the buildings had passed out of the possession of the religious communities. The added features at Polsloe are the fish-pond, fed by the ancient "Mynchon" lake, or stream, close by, and a fine capacious mediæval barn.

Shorn of their former glories, deprived of their churches, and devoted to far different uses, there is much left of both these buildings to delight the student and the archæologist.

SPECIAL LEGAL REPORTS.

Undeveloped Land Duty: Building Land.

Southend-on-Sea Estates Co., Ltd., v. The Commissioners of Inland Revenue.

October 31. King's Bench Division. Before Mr. Justice Scrutton.

This was an appeal by the company from a decision of one of the Referees, and arose under Section 17, Sub-section 5, of the Finance Act, 1910. The company were the owners of certain property in Southend within the extended borough and away from the more thickly populated parts, where building was taking place, known as South Church Wick, comprising 405 acres of agricultural land. It was let on a lease to a Mr. Bentall, but that lease expired in September, 1911.

In the lease there was a covenant reserving to the lessors full liberty for them to resume possession for building or other purposes of any part of the land. The Commissioners had assessed the land for undeveloped land duty, and the petitioners, as owners of the land, said this was wrong. They claimed that the whole of the land was agricultural land on April 29, 1910. The question came before the Referee, who decided that the appellants having power to resume possession of the land for building, it was therefore liable to be assessed for the payment of undeveloped land duty.

Mr. Hawke, K.C., for the appellants, said that they contended that, under the powers in the lease, they were not entitled to determine the lease and re-enter unless they had in fact some bona-fide intention to use the land for building or other purposes. They had not a general liberty to enter, and, unless it was on some reasonable grounds, the tenant could restrain them from entering. It was a question of fact whether they wanted the land for building.

The Attorney-General said no doubt it was right to assume that the petitioners did not want the land for building, but he did not say that nobody would want it. He contended that the appellants had the power to use the land for building purposes.

His Lordship, in dismissing the appeal, with costs, said he did not think the fact that a person who could exercise a power did not desire to do so showed that it was not possible to determine. It was possible that the man who had the option did not want to use it. As the point was of importance, and affected the general constitution of the Act, he granted leave to appeal.

Party Wall Dispute: Alleged Encroachment.

Horton's Estate, Ltd., v. Crockford, Grove, and Sons, Ltd., and Another.

November 3. Chancery Division. Before Mr. Justice Eve.

The hearing was resumed of the action brought by Horton's Estate, Ltd., of Birmingham, against Crockford, Grove, and Sons, Ltd., general drapers, also of Birmingham, and the Mayor and Corporation of Birmingham, for a mandatory injunction ordering the defendants, Crockford, Grove, and Sons, of Bull Street, and the Corporation to abate and remove alleged encroachments and trespasses by Messrs. Crockford's building upon a wall dividing it from the premises of Horton's Estate, and a declaration that a new building erected by Messrs. Crockford on the site of the building known as 101, Bull Street, was not entitled to any easement or right of support from plaintiffs'

building and land. (See our issue of November 5; p. 432.)

The defendants contended that the wall was either not situate on plaintiffs' land or was only partially so, and they also said it was a party wall. Defendants did not admit the trespass or encroachment, or that Horton's building was placed in danger.

Mr. F. W. Martin, a surveyor, of Birmingham, gave further evidence as to the wall in dispute being in his opinion Horton's.

Cross-examined: In consequence of the defendants' new buildings plaintiffs could not remove a stanchion on their side of the wall without letting Crockford's structure down. It was a fact that when the Birmingham Corporation desired to widen Bull Street a portion of the frontage to No. 100 was sold to them at a lower price than had first been agreed. That was on the basis that the wall was a party one, but Horton's maintained throughout that the wall was all theirs. Mr. Horton never understood why he received £30 less than he expected.

Mr. F. W. Martin, a brother and former business partner with the last witness, gave evidence that the wall in dispute was the plaintiffs'.

Upon his lordship taking his seat after an adjournment, Mr. Younger, K.C., stated that there was a prospect of settling the case if the parties were allowed time for a consultation. Later, Mr. P. O. Lawrence, K.C., said that all the parties wanted was that judgment should be given upon terms initialled by the leading counsel in the case.

Judgment was entered accordingly. The terms were not disclosed.

Alleged Nuisance: Vibration.

Munday v. South Metropolitan Electric Light and Power Co.

November 3. Chancery Division. Before Mr. Justice Neville.

Mr. Edgar F. Munday, a wholesale chemical manufacturer and retail chemist, of Deptford and Camberwell, sought an injunction against the defendants, alleging that they were responsible for a nuisance by the way they used premises adjoining his, and he also said that his premises suffered from vibration from the defendants' works.

Plaintiff said he had spent some £500 in putting the house he had acquired into order. He said the vehicles passing along the lane caused rumbling and was unpleasant. He also suffered from the vibration from the works.

Mr. G. S. Snelgrove, of Crooms Hill, Greenwich, near the plaintiff, said he had paid £1,000 for his house, and he alleged that noise and vibration had deteriorated his property.

Defendants, by their defence, set up a prescriptive right to the use of the lane, and called evidence to show that the lane had been used for commercial traffic for more than twenty years. The premises at the end of the lane were used for store purposes. They did not send a motor lorry down the lane now, but only horses and carts. They also denied that the plaintiff suffered in regard to vibration.

After hearing the evidence, his lordship held that, although the defendants had a right of way along the lane they had created a nuisance, and he granted the injunction asked for by the plaintiff as to nuisance and vibration with certain costs

A similar injunction was granted in an action by the plaintiff against the New Gutta Percha Co., Ltd., whose premises are near by.

Builder's Appeal: Master as Worker.

Judgment of the Divisional Court.

Thomas v. Carr.

November 5. King's Bench Divisional Court. Before Justices Bray and Lush.

This was a motion by the plaintiff, Mr. Thomas, to set aside a judgment of the Official Referee, Mr. Muir Mackenzie.

Mr. Carthew appeared for the appellant and Mr. Barrington Ward for the respondent.

Mr. Carthew said that the action was originally brought to recover £117 10s., which was the balance of an account stated between the parties for work done. Mr. Thomas was a builder and decorator, of Enfield, and the defendant owned a house at Winchmore Hill called Fairview. The claim was in respect to repairs, etc., at this house. The defendant paid £50 into court, and put in a counter-claim. The Official Referee thought that the account stated should be reopened by reason of various discrepancies in the account. Plaintiff thereupon asked for leave to amend the writ and leave was granted and the writ was amended. The Official Referee then found for the plaintiff for £103 10s. The defendants having paid into court another £55, making £105 in all, and the plaintiff only recovering £103 10s., no question being raised as to the counter-claim, plaintiff was ordered to pay the costs. Plaintiff now appealed on two grounds, misdirection of himself by the Official Referee and the exclusion of interest for a period of about six months or more. The Official Referee reduced the plaintiff's claim by £15 10s., which the plaintiff claimed partly for work done by himself and partly for superintending. Plaintiff was his own foreman, and worked as well, and he claimed to charge this amount under the contract as work. Then the Referee also allowed 30s. which plaintiff claimed as interest, and these items reduced the claim to under the amount paid in by the defendant, with the result that his client had to pay the defendant's taxed costs, some £106. Counsel argued that his client should have both these items.

Mr. Barrington Ward supported the finding of the Official Referee.

Mr. Justice Bray, in giving judgment, said this was a claim by the plaintiff that he was entitled to two items disallowed by the Official Referee. Plaintiff claimed £15 10s. the price of work done by the plaintiff himself, and on that point he did not think that the Official Referee had correctly decided. He thought that that amount came within the word "work," and therefore the plaintiff was entitled to the £15 10s. In regard to the claim for interest the court supported the finding of the Official Referee. The appeal would therefore be allowed with costs and judgment entered for plaintiff for £119 and costs of the action in so far as they were dealt with by the Official Referee.

Building Contract: Change of Site.

Gough v. The Bournemouth Corporation.

November 4. Official Referee's Court. By Mr. Muir Mackenzie.

This was an action by Mr. Henry Gough, formerly trading as J. and M. Patrick, against the Bournemouth Corpo-

ration in respect of certain work done by plaintiff in the erection of elementary schools for defendants and in regard to the site for the school.

Mr. Rawlinson, K.C., M.P., and Mr. Whately appeared for the plaintiff, and Mr. Pollock, K.C., M.P., and Mr. Cohen for defendants.

Mr. Whately stated that Mr. Frank Gough was now suing the Corporation as Mr. Henry Gough's next friend. Broadly speaking, this action involved two claims. One was in respect of certain work his client did in building elementary schools for defendants. The second claim was that he said that the defendants did not give him the site they contracted to give him; they gave him a worse site in a different locality, and he claimed in regard to the loss to which he had been put in consequence. Plaintiff sent in his tender in respect of the building scheme originally to be carried out in the Sherborne Road, Winton. Plaintiff, whose tender was accepted, went into possession of the site, but there was delay until the end of October, when the defendant sent down horses and carts and removed all his client's plant in the Sherborne Road site to another site 1,000 yards further from the station. It was a site difficult of access, and, instead of being a site with gravel, estimated at the value of £352, was an ordinary clay or soil site, on which it would be impossible to take carts without some provision being made by way of sleepers. Mr. Henry Gough had put forward claims for extra expenses to which he was put by having to work on the new site. The claim on behalf of the plaintiff amounted to £2,859 5s. 2d.

Mr. Pollock announced that his clients waived their counter-claim for penalties.

Mr. Frank Gough, brother of Mr. Henry Gough, said he had had interviews with the town clerk at Bournemouth, and the town clerk had asked him why the matter could not be settled without going to law. Then they discussed various figures, and finally witness said he could not accept a sum of £1,000 that had been suggested, as he ought to be paid on the prime cost and not on the measured account. Down to the present time Mr. Lacey, the borough surveyor and engineer, had not given him a final certificate.

Mr. Edward Tomlinson, quantity surveyor, of Messrs. Franklin and Andrews, Ludgate Hill, E.C., gave evidence for the plaintiffs, and said he put £650 as the figure for the substitution of the site. He thought the plaintiffs' charges fair and reasonable.

Mr. Cohen (cross-examining): You knew that Mr. Lacey's view was that the contract applied to what he called the new site?—Mr. Lacey never told me that.

Witness admitted that subsequently Mr. Lacey gave him to understand that his contention was that the contract applied to the new site.

Mr. Pollock, K.C., in opening the defendants' case, said that a tender had been submitted by Messrs. J. and M. Patrick, and notice had been given the plaintiffs only in September, 1909, that the tender had been accepted. The conveyance of the land in Sherborne Road had not gone through at that time. In fact, it was found that this land could not be utilised for the purposes of the school. The Corporation then, at their own expense, removed all the plant from the site with the assent of Messrs. J. and M. Patrick to the new site. The contract, which had been sent as early as September to the contractors, was ultimately returned by them signed on December 9.

Counsel pointed out that there was no reference in the contract to the site until they came to the specification, and with regard to that he should contend that they had the right to have parallel evidence as to what was in fact the site to which the contract related. Payments had been made up to £13,804, and Mr. Frank Gough had assented that these payments were made upon the certificates the Referee had before him. He pointed out that Mr. Lacey had paid the contractors £1,000 more than had been agreed. He submitted that the Corporation were entitled to judgment on all points.

Mr. F. W. Lacey, the borough engineer of Bournemouth, said he was architect to the Education Committee under a separate appointment. The contract in question was entirely supervised by him. He had seen Mr. Gough from time to time, and no protest had ever been raised on the part of the plaintiff that the Corporation had acted improperly in the removal of plant to the new site. He had settled the access to the site and all the measurements as between the clerk of the works and plaintiffs' foreman. He had gone through the various items for the purpose of making the certificate on the basis of the work being carried out on the new site. He had made allowances in his certificates in consequence of the work having been done on the new site.

This concluded the evidence, and the Official Referee reserved his judgment.

Curious Claim against Builders.

Gregar and Another v. Trollope and Sons and Another.

November 6, King's Bench Division. Before Mr. Justice Bailhache and a Common Jury.

Messrs. Trollope and Sons with another (their foreman) were defendants in an action in which a chauffeur named Gregar and his employer, Mr. John Mackenzie Riley, of 22, Wilton Crescent, W., sought to recover the value of certain property (about £60), alleged to have been stolen from Wilton Crescent by burglars while the house was in the hands of the defendants for repairs, owing, it was alleged, to carelessness on the part of the defendants.

Mr. Colam, K.C., appearing for the plaintiffs, stated that the stable at 23, Wilton Crescent was used as a garage, and over it Gregar with his wife lived. The family was away in the country while the premises were under repair, and the stables and yard were locked up. In order to facilitate the work of the painting, the foreman applied for the keys, which were forwarded to him with instructions to keep the doors locked when they were not being used. This, said counsel, was not done, and when the family returned it was found that Gregar's rooms had been entered by burglars and a number of things stolen.

Upon the completion of the plaintiffs' case, Mr. C. C. Scott, K.C., for the defendants, contended that there was no case to go to the jury, and after some argument his Lordship said there had been no evidence of negligence and no evidence that negligence was in any way connected with the robbery, nor had there been any evidence to show that it had been committed by an outside person. The case consequently failed.

Judgment was accordingly entered for the defendants.

Change of Address.

Mr. Francis Osler, A.R.I.B.A., has removed to 4, Church Street, Kensington, W. The telephone number is Western 1381.

COMPETITIONS.

Government Buildings, Ottawa.

The date for the receipt of designs in the above competition has been extended to April 2, 1914.

Council School, Winton.

In the competition for a new Council school at Winton, the designs of Mr. John Knight, of Manchester, have been selected.

Coventry New Technical Institute.

Members and Licentiatees of the R.I.B.A. are advised that the conditions of the above competition are not in accordance with the Institute regulations for architectural competitions. The Competitions Committee are in correspondence with the promoters with a view to their amendment.

Cottages, Newport Pagnell.

Newport Pagnell R.D.C. propose to erect cottages under the Housing and Town Planning Acts, and invite competitive plans, specifications, etc. A sum of £10 10s. will be awarded to the successful competitor. Particulars may be had on application to Charles W. Powell, clerk, Newport Pagnell.

Technical School, Cookstown.

Designs are invited for the erection of a new technical school, Cookstown. Particulars of the competition, in which it is proposed to give an award of £10 10s. only, may be had on application to L. Bradley, Director, Mount Royal, Dungannon, Ireland.

[If not already noted, the unsatisfactory character of the two foregoing competitions may be directed to the attention of the R.I.B.A.]

Art Gallery and Museum, Belfast.

Belfast City Council invite competitive designs for a new Public Art Gallery and Museum, to be erected in the Botanic Gardens. The assessor is Mr. J. J. Burnet, LL.D., A.R.S.A. The author of the selected design will receive the commission, and premiums will be awarded as follows: Second, £100; third, £75; fourth, £50. Designs are to be sent in by March 24, 1914. The buildings are not to exceed a cost of £75,000. It is intended to begin with only a portion of the scheme, estimated to cost £30,000.

CARDINAL WOLSEY'S "WINE CELLAR."

The conditions of competition for the new offices of the Board of Trade, to be erected in Whitehall Gardens, lay it down that each competing architect shall make provision in his scheme for the inclusion, in their entirety, of the vaulted chambers which formed part of the old Palace of Whitehall. It has been suggested that these chambers, with their low vaulted roof, were used in the time of Cardinal Wolsey as wine cellars. The experience, however, of the Office of Works during the erection of the buildings now occupied by the Board of Agriculture in Whitehall Place does not lend any support to this theory, for in digging the foundations the old cobble slipway of the ancient Palace was found at one point 17 ft. below the present street level. Arguing from this fact, it is assumed that at the date of their construction the vaulted chambers, which are now at the basement level, were in all probability on the ground level, and, of course, not cellars at all, the difference of levels being accounted for by the accretion of soil during many years.

THE NEW BLUECOAT SCHOOL COMPETITION, BIRMINGHAM.

The award in the above competition, announced in last week's issue, has excited great interest and no small amount of controversy in Birmingham. The buildings required were for a large boarding school, a comparatively rare subject in the competition world. The competition was limited to architects practising in Birmingham, and was arranged in two stages, three architects being selected from the preliminary one for a final trial of skill. The assessors appointed were Messrs. C. E. Bateman and G. H. Hunt, F.F.R.I.B.A. For a proper understanding of the plans illustrated the following conditions, stated to be essential, should be borne in mind: (1) The main front was to be to Somerset Road. (2) The two halls were to be either adjacent or easily accessible one to another. (3) The dormitories were to have external windows on both sides. (4) The buildings were to be so planned that it should not be necessary for boys or girls to pass through each other's quarters. It will be noticed from the accompanying sketch that the premiated design does not closely comply with these essential conditions. The main front does not face Somerset Road, and a glance at the plan will show the inconvenient relation between the positions of the two halls, while apparently the boys must pass the girls' quarters in order to gain access to the dining-hall, infirmary, and isolation block. Apart from these considerations, the plan seems to the writer to be unhappy in grouping and arrangement. The passage of all goods, including coal with the inevitable dust, along the whole front should have been avoided. On the first and second floors, two of the boys' dormitories are, at their farthest end, 300 ft. from the baths and latrines; the staircase provision is inadequate; and the supervision of the dormitories does not strictly conform to the conditions. Upon the incongruity of making the masters' houses the main features of the elevation we need not dwell, but the inconvenience entailed by having them so near all the noise of the school is obvious.

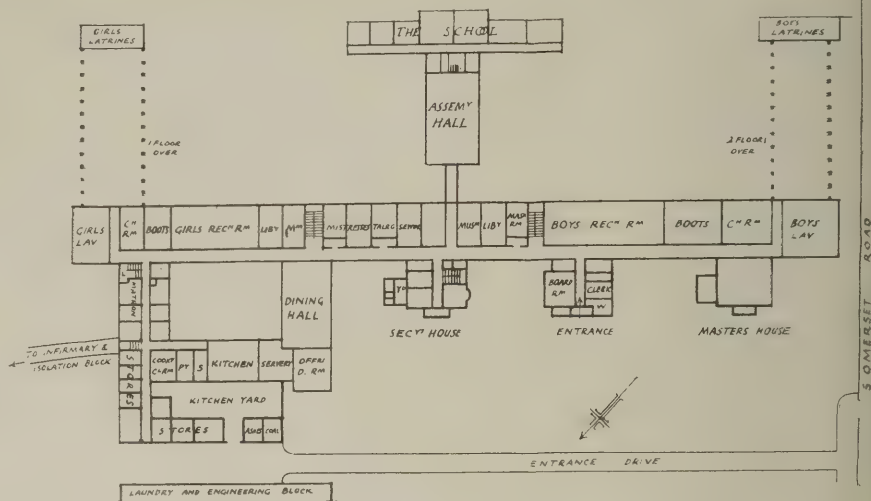
On turning to the two other plans the advantage and economy of symmetrical planning is once again demonstrated. The chief difference between the two is in the position of the dining-hall and assembly hall, which form the keystones of both plans. To the position in which he places them is due the compactness of Mr. Type's plan, and also to the absence of attempt at an absolute symmetry on plan which would ultimately be unnoticeable in the actual buildings. The detached position of the halls ensures thorough lighting and ventilation for them, and enables the author to arrange his administrative rooms more centrally and so to pull in the whole of his scheme, though the result might be interpreted as not fully complying with the conditions. There is a very near approach to an enclosed quadrangle, which was mentioned as undesirable, and the board room, etc., are hardly convenient to the secretary's house, as was hinted would be acceptable.

These results are avoided by Messrs. Garratt and Simister by their placing of the halls in juxtaposition on the main front, but the resulting corridors along one side and along the sides of the recreation room are hardly a favourable feature. In this plan there is a complete division of the boys' and girls' departments, easily workable, which is not achieved in the other two, and the isolation and in-

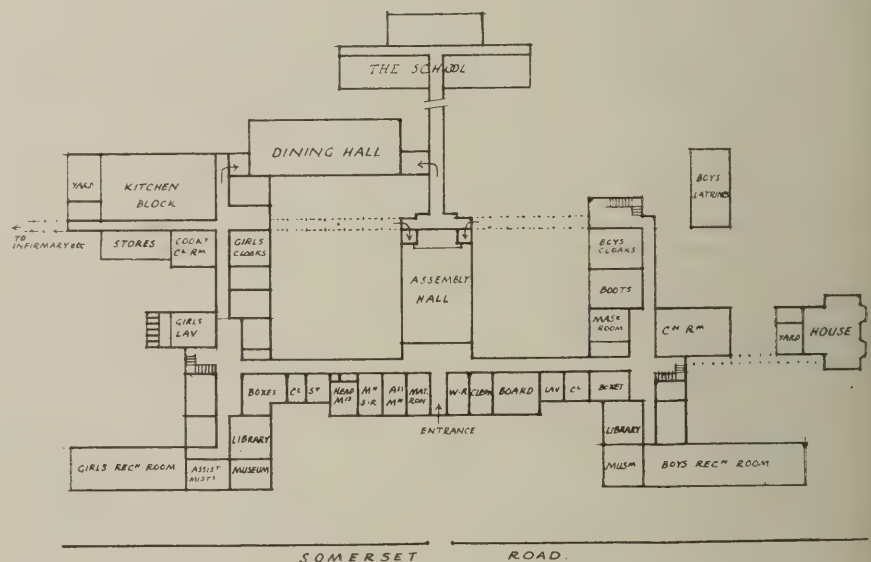
firmary blocks are nearer the main buildings, and at the same time well shielded from them. The position allotted to these blocks in the premiated design is, for other reasons besides those already stated, far less fortunate.

The differences in detail between these

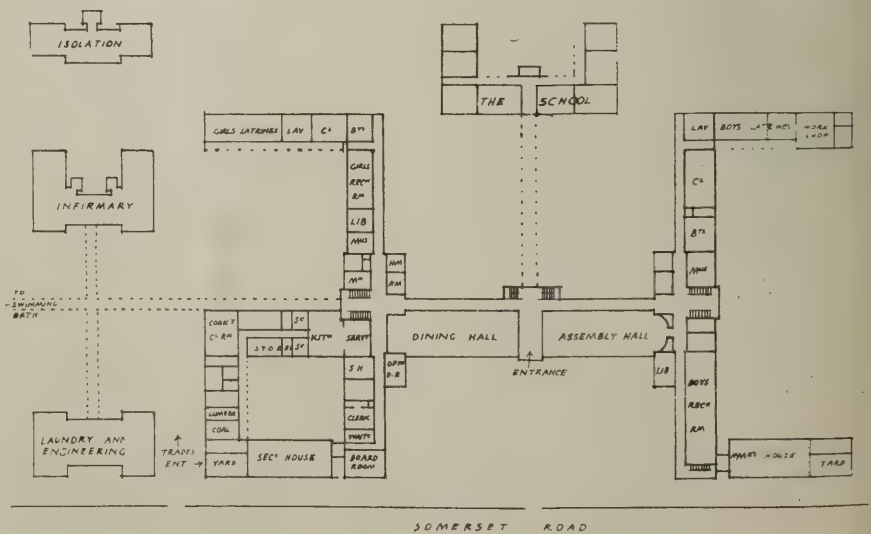
two plans serve to illustrate the great difficulty of satisfactorily meeting all the conditions; and while opinion may differ as to which of these two approximates the more nearly to the ideal solution of the problem, we much prefer either solution to that essayed in the premiated design.



Sketch of Premiated Plan. J. L. Ball, Architect.



Sketch of Mr. M. Type's Plan.



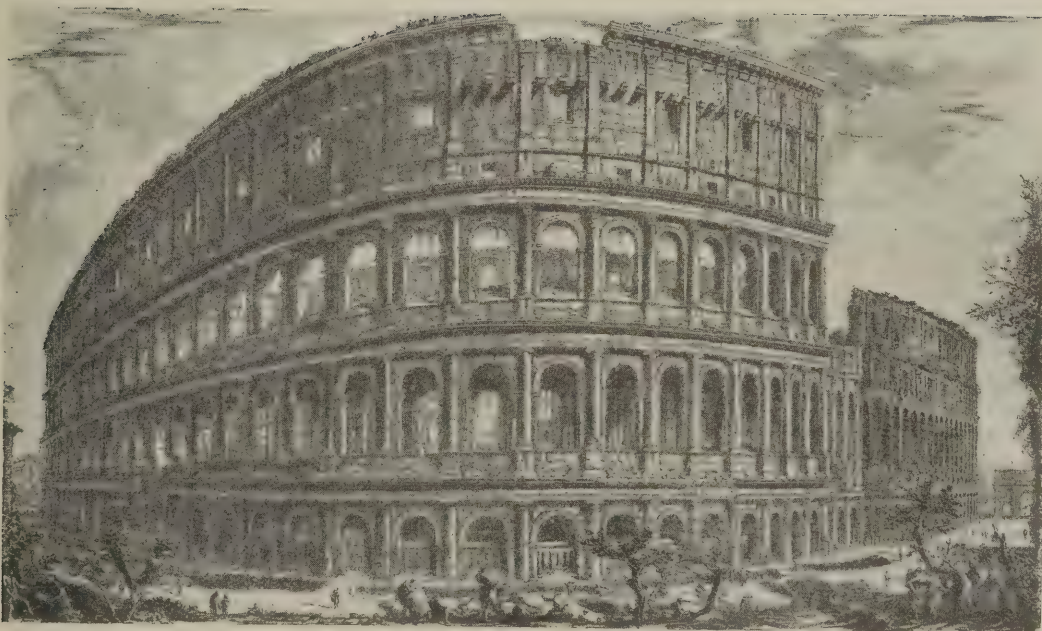
Sketch of Messrs. Garratt and Simister's Plan.

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What Constitutes "Modern" Architecture?

IT often happens that a controversy which is really concerned with ideas appears to a superficial observer to be little more than a fight for the possession of a word; but it is not in accordance with human nature that men should quarrel about words alone. As a rule, the battle rages between rival groups because each of them lays claim to the qualities which the word connotes; for instance, if there are two mutually hostile schools of art each determined to allocate to itself the title "modern," either the word becomes all-embracing, and thus loses its meaning entirely, or else the struggle must be continued until there be a complete victory of one party over the other. Hence the attempt to define a word and to appropriate it for a certain use is not a mere academic exercise interesting to nobody but philologists or metaphysicians, but can sometimes be interpreted as a definite act of aggression, an assault upon some movement in art or letters. A house, a picture, or a vase, when once created, is complete, but language is liable to corruption and makes a constant demand upon the discipline of those who use it. The most ordinary terms are apt to be misapplied unless a close watch be kept over them, and especially is this the case with regard to adjectives of a laudatory character. But great architecture is only possible when a standard of criticism is upheld. The true critic, so far from being hostile to the artist, is his best henchman, for he wages war against all the bad and false work and prevents it from smothering the good. Language is the medium of the critic, and he only possesses power when the terms he uses are properly defined; weapons are of little value unless they are kept bright and sharp and clean.

Of all the injuries to art which are directly to be attributed to the abuse of words none is greater than that caused by the far too common application of the term "modern" to a work of architecture. It should be most clearly established that only a very small percentage of the buildings erected to-day are worthy of this title. We who live at the present time are often described as the heirs of all the ages; we are not really modern, however, until we have entered into our heritage. One is doing no violence to this word in insisting that it should connote something which embodies the best knowledge of the past as well as of the present; a man must be learned before he can be modern. Mere originality does not suffice. If a mathematician were to forgo the help of text-books and instructors and study his subject from the beginning, he would be a great genius if he got as far as Euclid or Pythagoras; yet many schoolboys of sixteen know more than they. The older the world gets the more difficult it becomes to contribute anything new.

There have been periods of history when people were ignorant of the splendour of ancient civilisation. According to the terminology which we are adopting here, in mediæval times and in what are called "the dark ages" the most notable works of art and literature were not modern even when first produced. That is why they exert such a very small influence over us.

On the other hand, there have been eras when men had such great strength of purpose and had, moreover, attained to such a high degree of intellectual emancipation that their achievements have not yet been surpassed. Plato and Thucydides are more modern than St. Augustine or Calvin; the Parthenon is more modern than Westminster Abbey. It has been said that we have much to learn from the mediæval artist also, and that if we may not copy his forms, we can at least try to emulate his spirit. Obviously, one cannot help admiring the devotion displayed by the Gothic craftsman; it must be noted, however, that the most savage tribes and even animals are capable of perseverance and self-sacrifice, and it is the possession of intellect in addition to these qualities that makes one people more distinguished than another. Classic architecture is the embodiment of a method which is still of use to us, and thus it is ever youthful and vigorous, while Gothic is well-nigh extinct.

Real advance in an art is only possible when mere novelty, which is more often indicative of reaction than of progress, is never allowed to assume the dignity that belongs to works which are modern in the true sense, which are the logical development of a tradition founded upon a right perception of the purpose and limitations of the art. A great deal of what is eccentric in *l'art nouveau* and in the efforts of Cubists and Futurists is due to the fact that an attempt is being made to express by means of architecture and painting various symbolic notions that really belong to the province of language; but it is useless to begin to practise an art unless its function has first been determined, and the neglect of this precaution is responsible for the most ridiculous excesses. To a certain extent, too, the glorification of feeling and instinct leads people to despise the past and to imagine that they can rely upon themselves alone. The emotional theory of art, however, has also got its victims among the devotees of tradition, though the latter are saved from total disaster because their creations have always some of the prestige attaching to the severely intellectual forms of column and entablature which they have taken from the Greeks; but these architects are hardly more modern than those whose work comes under the category of *l'art nouveau*.

Of course, there is a certain loose manner of speaking according to which everything belonging to our own time is modern; the term would equally be applied to a jerry-built row of cottages, to the various adaptations of the Perpendicular, Jacobean, Queen Anne, and Georgian styles, to the Cardiff City Hall, or the Pennsylvania Railway Station. But it would be of benefit if critics would deny the title "modern" to every piece of architecture which does not satisfy certain definite conditions. It is not sufficient that a building be conveniently planned or well constructed; its author must show that, while not ashamed to utilise those forms of the past whose excellence has been established beyond dispute, he has yet been able to make some permanent contribution to the theory of design.

A. T. E.

Liability to Sub-contractors.

IN the important case of Ramsden and Carr v. J. Chessum and Sons, which was finally settled in the House of Lords last Monday, the main point at issue may be summed up in the answer to the simple question, Who is liable to the sub-contractor for goods supplied? Ramsden and Carr supplied door-handles and door furniture for a picture theatre of which J. Chessum and Sons were the builders. These supplies were ordered by the architect, and the vendors looked to the builders for payment (the price being £142 13s.), but the builders denied liability, as the goods were not included in the specification. Two judges had decided that the builders were liable and two that they were not. Mr. Justice Hamilton had held that the appellants had failed to show that the architect had acted as agent for the builders; that the appellants had no claim against the builders as for money had and received; but that in the circumstances of the case the fact that the goods were used by the respondents raised an implied promise by them to pay for them, and he accordingly gave judgment for the amount paid. This judgment has been upheld in the House of Lords, the Lord Chancellor holding that "if A brought goods to B to be used upon work which B was doing, and B knew that those goods were not brought as a gift, but were meant to be paid for, and B then used the goods upon his work, the inference to be drawn from those facts was that there was an implied promise on the part of B to pay for the goods." He held that the builders were liable, and the other noble and learned lords concurred. This certainly hits the principal contractor rather hard, as it seems to put upon him the burden of responsibility for seeing that the sub-contractor or other merchant (whom he may not himself have had any voice in engaging) is paid for goods or materials supplied, whether or not the principal contractor is himself paid; and this effect, while it might be technically correct, would be, it is quite clear, wrong in principle. What strikes us very forcibly as being a fatal flaw in the House of Lords judgment is its failure to take cognisance of the vital fact that the builder was not using the goods for his own benefit, and that they did not become his own property. The judgment seems questionable.

Surrey's Monumental Buildings.

AN excellent effect of the Ancient Monuments Act is its bringing to light many most interesting objects whose existence was not generally known. Many of these are of considerable architectural interest, and the lists that have been prepared by local authorities at the request of the Office of Works, although as yet few in number, have already expanded the horizon of the student of architecture, and given him a greater abundance of material than he had ever hoped for. A further proof of the value of the Act in bringing to light work that would otherwise have remained in obscurity is found in the list that has just been presented by the Surrey County Council. Already well known are Alfold House (1500) and Alfold Park, a moated house with louvred timber hall and late Tudor chimney; Loseley House (1563), built by Sir William More of materials brought from Waverley Abbey and the Friary, Guildford; Beddington House (1500), a fine Elizabethan hall with interesting wrought-iron gates; the remains of a manor-house at Place Farm, Bletchingley; Pendell (1636) in the same parish, and attributed to Inigo Jones; "Slyfield" (1614), with its splendid staircase and enriched ceilings; Smallfield Place, Burstow, with its Tudor enrichments; the Manor House at Byfleet; Great Tangley Manor, Woking, with its fine timberwork; Great Posters, Egham (1601-3), a fine gabled brick mansion; Woodcote House, Epsom, built by Wren, and having

ceilings by Verrio; Sutton Place (1523), with its curious mixture of Gothic and Renaissance; Chertsey Abbey villas; Crowhurst Place, with its fine timbering, panelling, and fireplaces; and a few other conspicuous monuments. Others that are much less famous are included; and lists such as this being of unquestionable value, it is a pity that such publicity as they receive appears to depend on the exigencies of newspaper production. If all the local authorities were set to work simultaneously on the preparation of such lists, and these were at once collected into a volume, Mr. Mervyn Macartney's complaint that we shall probably have to wait 160 years for the completion of the records would lose some of its sting though less of its justification.

Harrow School Threatened.

AMONG the remoter possibilities of town-planning zeal is the demolition of Harrow School. Harrow Urban District Council is preparing a town-planning scheme, and in the course of the Local Government Board inquiry into the project, the inspector seemed—as well he might—scandalised at the inclusion within the schedule of a great portion of the school property—the cricket-fields, speech-room, Vaughan Library, music school, and chapel. He hinted that the L.G.B. would require "some strong reason" for this cool proposal, and he asked the clerk to the Council if he had any reason for supposing that the school was likely to be pulled down. In reply, the clerk disclaimed definite knowledge, and added, rather vaguely, that "with London gradually spreading out towards Harrow, the governors of the school might decide to remove the ancient foundation to some other locality." On the other hand, they might not; for full well must they know that such a decision would draw down upon them the Achillean wrath of countless Harrovians whose passionate regard for the associations of their school is not likely to be tempered by the reflection that its buildings are neither very old nor very beautiful. Although the school was founded in 1571 by John Lyon, yeoman, and is coeval with Westminster and Rugby, but is a century younger than Eton, and by two centuries less ancient than Winchester, its buildings are not venerable in any sense of the word. Still, they are the abode of many memories; and Harrow Council should revise its scheme, lest town-planning be brought into casual disrepute.

The Nemesis of Mean Building.

WILLESDEN ratepayers are in a fair way to pay dearly for the mean views of school-building that beset their predecessors. It is estimated that, in order to meet the demands of the Board of Education, £170,000 must be spent on the erection of new schools, the managers of existing "non-provided" schools being unable to comply with the demand for the minimum playground accommodation of 30 sq. ft. per child. Only too characteristically, the managers of these schools (which were built at a time when land in Willesden must have been plentiful and cheap, "take the view that it is unfair to expect these schools to be brought up to the modern standard, and they think that a distinction should be drawn between them and the others." Why palter with so vital a question as the provision of adequate school accommodation? Surely the present consequences of past meanness should make it perfectly plain that to postpone necessary reform is to multiply trouble and expense; but the plea for these inefficient buildings shows that, even in the hard school of experience "knowledge comes, but wisdom lingers."

THE PLATES.

The New North Front to the British Museum.

WE illustrate this week the main entrance to the new galleries which have been erected on the north side of the British Museum and a detail view of the façade with one of the two lions that are set on either side of the portal. A general view of the new façade was published as a Centre Plate in our issue for April 16th last. Mr. Burnet has gained a splendid effect by the treatment of his huge Ionic order, and its relation to the galleries within is eminently fit. The main entrance has a marble surround to the doors (which are of bronze, designed with great skill and finely executed), the remainder being in Portland stone. The recumbent lions are by Sir George Frampton; they are undoubtedly very dignified in appearance, but there is an archaic air about the treatment of the head that is not altogether pleasing at close quarters. So far as the structural work is concerned, the new wing is completed, but the finishing and fitting work will yet occupy many months, and it is not expected that the galleries will be open to the public before next May. The foundation-stone was laid in June, 1907, so that altogether seven years will have been taken in erecting the new wing. This wing, it should be remembered, is only the first portion of an extension scheme which embraces the south, east, and west sides. In the new block there are two principal floors running the whole length, that on the first floor being intended ultimately for the exhibition of glass and ceramics, while above is a new top-lighted gallery for prints and drawings. The new façade has twenty Ionic columns, standing 14 ft. above street level. The attic storey is appropriately treated as blank wall space and is crowned by a rich lead cresting.

House at Hampstead.

The house in Wellgarth Road, Hampstead, by Mr. Charles Cowles-Voysey, A.R.I.B.A., has recently been erected on a site overlooking the Heath. The accommodation is shown on the plans. The materials used are dark purple bricks for the general walling, with quoins of light red bricks. The roof is covered with hand-made sand-faced red tiles, the cornice, porch and sash windows being painted white. It is a very pleasant-looking house and follows a good Georgian type.

Messrs. Whiteley's Shop-Fronts.

The shop-fronts at the new premises of Messrs. William Whiteley, Ltd., with frontages to Queen's Road and Porchester Gardens, are of that type which meets the demand for a very large unbroken glass area. In this case the architects have boldly accepted the conditions, and have adopted a trabeated treatment, there being a continuous unbroken entablature at first-floor level, supported at regular intervals by twin columns. The ground-floor columns are of Cornish grey granite, those above being, like the rest of the stonework, of Portland stone. The building is of steel-frame construction, and it is the steelwork that takes all the loads, the stonework being no other than an architectural casing. No shopkeeper could want more window for display than is here provided, yet it will be admitted that the building itself has a logical appearance, there being sufficient masses of stone properly placed on the ground floor to give an appearance of stability and support to the upper floors. The shop-fronts have gun-metal frames, executed by Messrs. Fredk. Sage and Co., Ltd.

Neo-Grec Detail.

The doorway illustrated is one of two that occur at either end of the long Vestibule de Harlay in the Palais de Justice, Paris. The stele to the pediment, the pilaster capitals, and the entablature are all essen-

tially individual to Duc, and display once more his resource in design. In the photograph reproduced the proper door is missing, a temporary screen filling its place.

Early Nineteenth-Century Architecture.

The Custom House at Plymouth was built in the closing years of the reign of George III. Its design is made up of a few very simple parts, but they are well proportioned in relation to one another, and the building is consequently pleasing. It is, however, the rustication of the ground-floor storey that calls for most notice. This is quite an admirable piece of work. We have not been able to discover who the architect was. This frequently happens in the case of buildings erected in the late eighteenth and early nineteenth centuries. It is obvious, however, that he was a man of some talent.

Working Drawing of National Museum of Wales, Cardiff.

We publish this week another working drawing from the set which Messrs. Smith and Brewer have prepared for the erection of the new National Museum of Wales in Cathays Park, Cardiff. This shows the east main staircase. The drawing being fully detailed, needs on description, but it will at once be seen to be both an admirable example of technical draughtsmanship and a very scholarly piece of architectural design. The dome lights over the staircase are very happily treated, and will no doubt look excellent in execution. The work is now proceeding.

"THE ARCHITECTURAL REVIEW."

THE November issue of the "Architectural Review," just published, is exceptionally interesting. From an architectural point of view the finest plates are unquestionably those of the façade of the Palais de Justice, Paris. These show Duc's great work to perfection, and those who have an eye for its beauty will treasure such superb illustrations of it. Mr. A. E. Richardson writes some descriptive matter about the building. "Painted Decoration in England—from Reubens to Thornhill" is the subject of an exhaustive article by Mr. Ingleson C. Goodison, with some fine illustrations. This article traces the chief works of all the leading painters of the period, and is a valuable contribution to the subject. There is particular point in Mr. Goodison's observation that decorative painting has gone sadly out of vogue in England, so that at the present time, while there are "easel painters" without number, it is difficult to secure an artist who is competent to undertake painted decoration executed as part of the scheme of a room.

Another article of interest deals with "Slyfield," an early seventeenth-century house near Leatherhead which retains its original work intact and possesses some enriched plaster ceilings of great interest.

Mr. Ramsey, in his series of club articles, deals this month with the United Service Club, and, as usual, there are some excellent photographic illustrations in the text and among the plates. The original building was designed by Nash, but subsequently the exterior was altered by Decimus Burton, who was responsible for the ornate frieze, the work in the pediment of the double-storied portico to Pall Mall, the surrounds of the ground-floor windows, and the balustrade with lamp standards around the basement area. Nash's original perspective and a photograph of the building as existing are reproduced together on one page, and the comparison is a most interesting one.

Other articles in the issue include one on the demolition of St. Mark's Church, Rotterdam—a fine building of the Wren period, which ought certainly to have been preserved—and a short article on a small country house garden at Greenham Common, Newbury, illustrated by some delightful photographs.



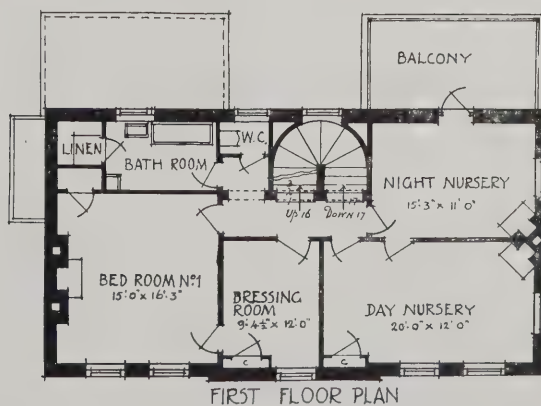
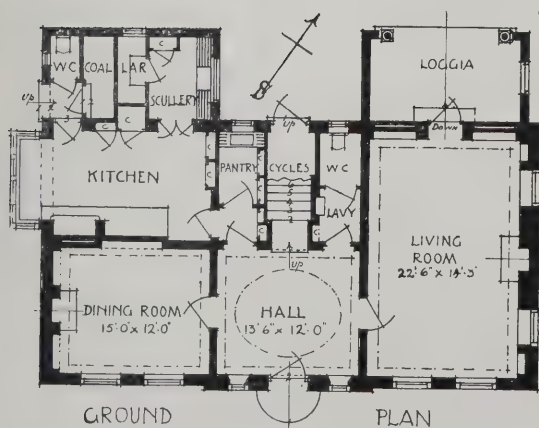
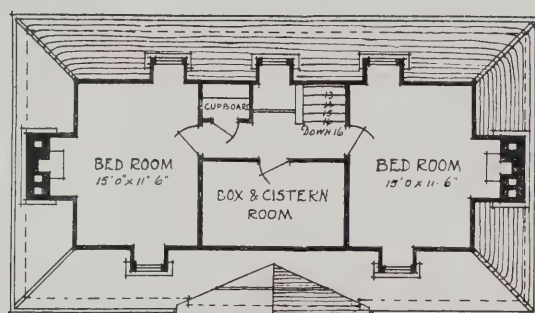
CURRENT ARCHITECTURE. XVI.—DETAIL OF NEW NORTH FAÇADE TO THE BRITISH MUSEUM.

J. J. BURNET, A.R.S.A., F.R.I.B.A., ARCHITECT.



CURRENT ARCHITECTURE. XVII.—MAIN ENTRANCE TO KING EDWARD VII. GALLERIES, BRITISH MUSEUM.

J. J. BURNET, A.R.S.A., F.R.I.B.A., ARCHITECT.



MODERN DOMESTIC ARCHITECTURE. VIII.—HOUSE IN WELLGARTH ROAD, HAMPSTEAD, LONDON.

CHARLES COWLES-VOYSEY, A.R.I.B.A., ARCHITECT.

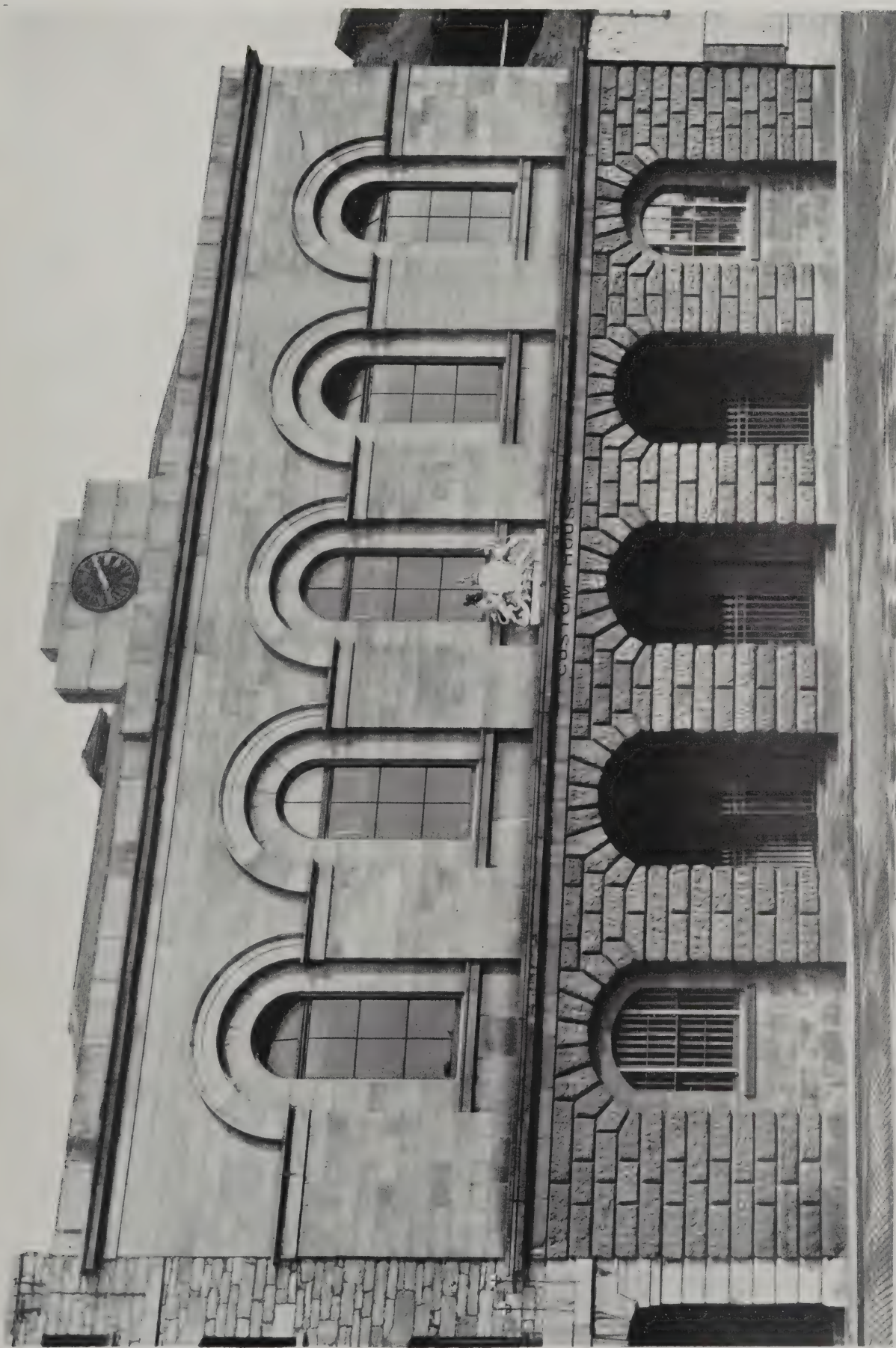


MODERN SHOP FRONTS. VII.—MESSRS. WHITELEY'S NEW PREMISES, LONDON: FAÇADE TO PORCHESTER GARDENS.
THE LATE JOHN BELCHER, R.A., AND J. J. JOASS, F.R.I.B.A., ARCHITECTS.



NEO-GREC DETAIL. VII.—DOORWAY IN THE VESTIBULE DE HARLAY, PALAIS DE JUSTICE, PARIS.

J. L. DUC, ARCHITECT.

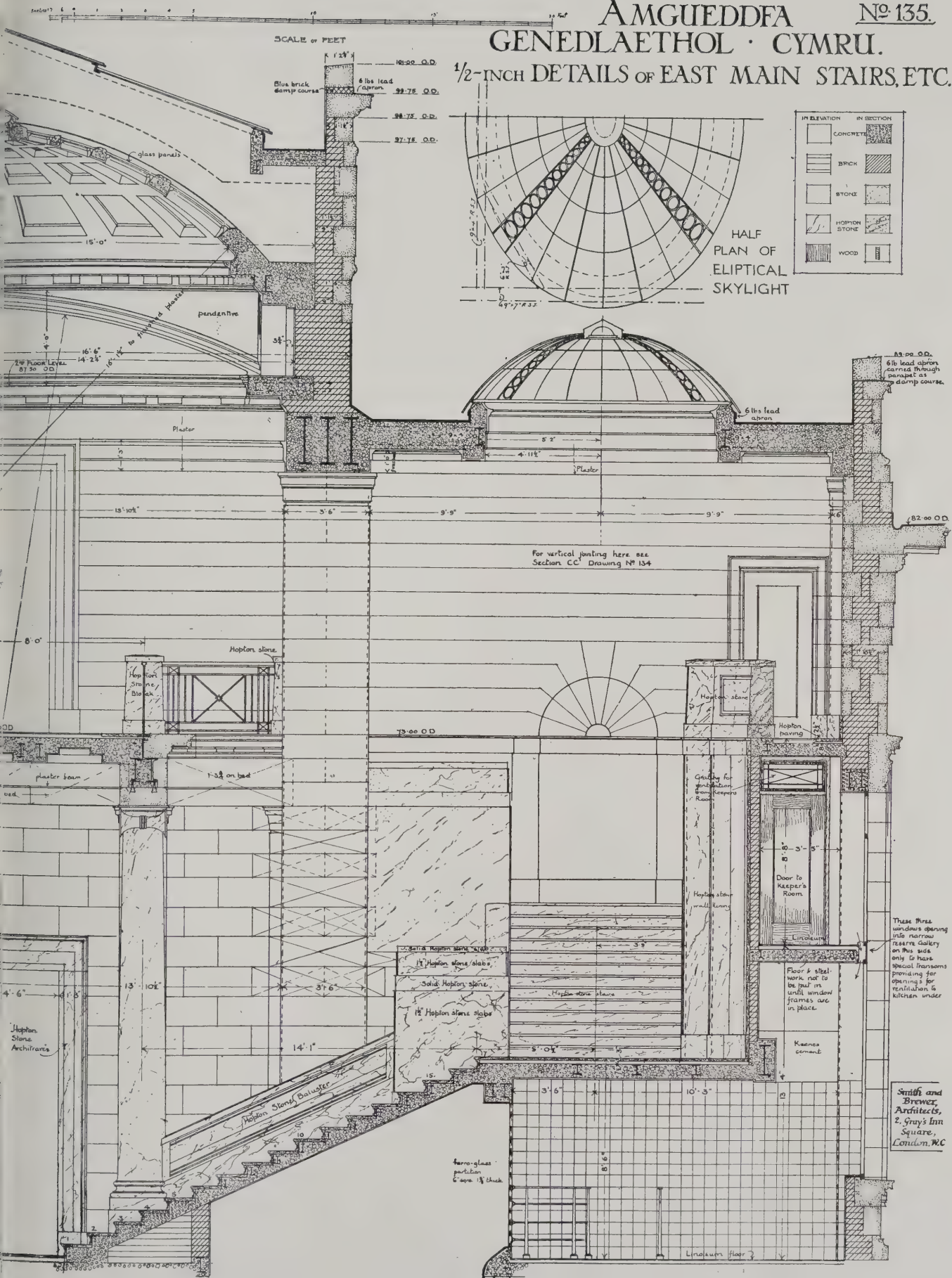


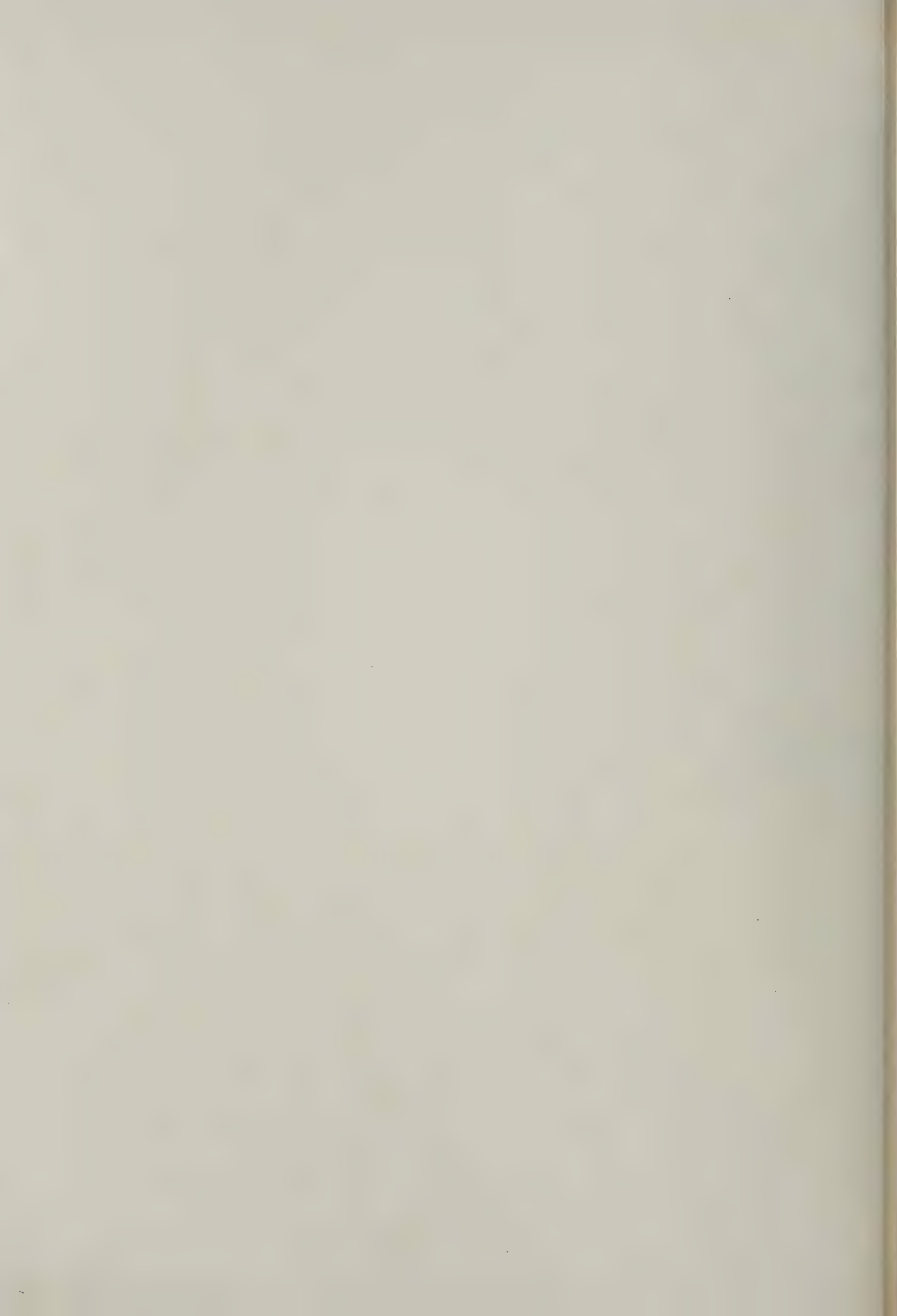
EARLY NINETEENTH-CENTURY ARCHITECTURE. III.—THE CUSTOM HOUSE, PLYMOUTH.

AMGUEDDFA GENEDLAETHOL · CYMRU.

No 135.

1/2-INCH DETAILS OF EAST MAIN STAIRS, ETC.





HERE AND THERE.

NOVELISTS and playwrights, when they take to tragedy or comedy, generally transport themselves to the realms of the upper classes, remembering Pope's couplet that

"Tis from high life high characters are drawn,
A saint in crape is twice a saint in lawn."

Or else they go to the lowest classes, where the pathos of poverty is set against a background which is almost wholly sordid. Few only care to seek material in the middle classes. There are, however, some brilliant exceptions, among them Mr. Arnold Bennett, who, being a very keen observer, and having a pen that scurries along with remarkable ease, is able to disclose to us some most surprising things in unsuspected quarters. His latest book well illustrates this. Under the catch-title of "Paris Nights" (Hodder and Stoughton, 12s.) it offers us a disconnected series of short articles recording the writer's impressions of places and people in the capitals of Europe, amid the Swiss mountains, on the Italian Riviera, and in the industrial towns of the Midlands. Thus set going, Mr. Bennett has filled nearly four hundred pages, these being enlivened with about fifty sketches by Mr. E. A. Rickards. Mr. Rickards's draughtsmanship is as brilliant as his architectural design; the sketches that illustrate this book are all exceedingly clever, and some of them are quite masterpieces of suggestive pencilwork. Those, therefore, who have a love for such work will appreciate these delightful sketches. It is the letterpress, however, with which I am mainly concerned at the moment. A great deal of this happens to be irrelevant to these pages, but a certain part of Mr. Arnold Bennett's study of the British home is professionally appropriate. The gifted author gives us this peep into the house of the Smiths, somewhere in the Midlands:—

"Mr. Smith's home is in a fairly long street, containing some dozens of homes exactly like Mr. Smith's. It has a drawing-room and a dining-room, two or three bedrooms, and one or two attics, also a narrow hall (with stained glass in the front door), a kitchen, a bath-room, a front garden and a back garden. It has a service of gas and of water and excellent drains. The kitchen range incidentally heats the water for the bath-room, so that the bath water is hottest at about noon on Sundays, when nobody wants it, and coldest first thing in the morning and last thing at night, when everybody wants it. (This is a detail. The fact remains that when hot water is really required, it can always be had by cooking a joint of beef.) The house and its two gardens are absolutely private. The front garden is made private by iron rails; its sole purposes are to withdraw the house a little from the road and to enable the servant to fill up her spare time by washing tiles. The back garden is made private by matchboarding. The house itself is made private by a mysterious substance unsurpassed as a conductor of sound. Mr. Smith's home is adequately furnished. There may be two beds in a room, but each person has a bed. Carpets are everywhere; easy chairs and a sofa do not lack; linen is sufficient; crockery is plentiful. As for cutlery, Mr. Smith belongs to the only race in the world which allows itself a fresh knife and fork to each course of a meal. The drawing-room is the best apartment and the least used. It has a piano, but as the drawing-room fire is not a constant phenomenon, pianists can only practise with regularity and comfort during four months of the year—hence perhaps a certain mediocrity of performance. . . ."

Thus we proceed. It is just a peep into a house which we very frequently come across. The reader will have noticed that an element of satire envelops the whole effusion, but there is also an underlying stratum of well-directed criticism, and as Mr. Arnold

Bennett is ready with wit as well, we can scamper through this new book of his with the utmost interest.

* * * *

Whenever the "ghost" has been brought up for discussion, it has always been customary to extend sympathy to this unfortunate person, who is represented as being the real author of the brilliant design which the principal passes off as his own. In this way the "ghost" has claimed our most considerate consideration as a birth-right. He is the aggrieved person; the one who never has the chance of securing the credit for the labours of his own hands, except when his existence becomes so insistent that a partnership is the only means of keeping a decent aspect on the face of things. But there is a reverse side to the medal. Certainly in one respect the "ghost" is able to enjoy, in complete seclusion, a freedom from the errors of his own career which is denied to architects who set up a brass plate on their own account. That is to say, the "ghost" is in the happy position of having a principal who, even if he takes credit for the good things, is equally ready at hand to bear the brunt of the mishaps which the "ghost" is responsible for as he gropes his way onward in the early stages of his career. So that despite the time-honoured wail on behalf of the unacknowledged worker behind the scenes, there is something to be said for the well-abused principal, who, making the work out to be his own, has to take the rough as well as the smooth part of the business. In an architectural way it is something like a doctor's assistant experimenting with various concoctions on the persons of the circle of clients—and being absent at the inquest.

* * * *

The auctioneers who get out their bills and booklets descriptive of some modern house for sale always make a point of insisting on the up-to-dateness of everything down to the smallest details. But some of this up-to-dateness when examined is not the glorious thing it is represented to be. To take one part of the equipment of a house, such as the case with the door and window furniture. Take for instance one of those beautiful brass locks which you find in houses of the eighteenth century. Look at the finish of it; the exact way in which the bolts shoot through their slots (they are thin compared with the bolts of the modern lock and are set with their long sides at right angles to the door instead of vertically), and look especially at the beautiful form and finish of the key. Only a few days ago I was examining a key which was typical of those which our great grandparents were accustomed to use. It was a beautiful piece of wrought ironwork, well finished and well proportioned. The barrel or stem was long and elegantly formed, and the loop was in keeping with it—not an ugly flat piece of work of inexact form, but a perfectly rounded loop which was as pleasing in appearance as it was admirable to handle. The Yale lock may be and no doubt is an excellent means of making a door secure, but if you set a Yale key against such a key as that which I have described above, you will soon come to the conclusion that up-to-dateness in this case has been secured at the expense of artistic design and craftsmanship. Yet this should not be. Provided that taste is at hand as well as invention, even a Yale key might be made passably pleasing. But as we know it, and as we know many another key, all idea of the art of the smith and the craftsman in metals is gone. Thus it comes about that our present-day keys bear the same relation to the old ones as a bent-wood chair or an American roll-top desk bears to the furniture of the period of Sheraton or Chippendale.

UBIQUE.

THE LATE MR. JOHN BELCHER, R.A.

It is with deep regret that we record the death of Mr. John Belcher, R.A., which occurred at his residence, Redholm, Champion Hill, on Saturday, November 8th. His name is associated with a long series of important buildings, both civic and domestic, and as an architect of distinction his death is a great loss to the profession, while as a man possessed of a most kindly nature he will be mourned by a large circle of friends.

Mr. Belcher, who was seventy-two years of age, was elected an Associate of the R.I.B.A. in 1869, a

knowledge that he had gained as a boy in Paris, where he was sent to study and sketch, with parental instructions to give close attention to the Renaissance as understood in France.

Beginning his work towards the end of the Gothic Revival, he was naturally influenced by such eminent exponents of the manner as Scott, Street, and Burges. Indications of his original bent were to be seen in the premises of Messrs. Mappin and Webb at the junction of Cheapside and Queen Victoria Street, an early work which he carried out in conjunction with his



THE LATE MR. JOHN BELCHER, R.A.

From the portrait by Frank Dicksee, R.A., at the Royal Institute of British Architects.

Fellow in 1882, and was president of the Institute from 1904 to 1906. The seventh International Congress of Architects was held in London in the latter year during his term of office. In 1907 he was presented with the Royal Gold Medal. In 1900 he became an Associate of the Royal Academy, and in 1909 a Royal Academician.

Articled to his father, an architect who practised for many years in Adelaide Place, London Bridge, Mr. Belcher brought to the beginning of his career the

father. (The premises have latterly been reconstructed to the design of Mr. Belcher and Mr. J. J. Joass, F.R.I.B.A.)

Mr. Belcher worked in partnership with his father for many years. When the father retired, Mr. Belcher, to quote his own words, "after swallowing Street's Academy lectures, forthwith proceeded on a wild Gothic career." He very soon appears to have discovered his mistake, thus fulfilling the prophecy of his father, who, finding his son becoming inordinately

enthusiastic over the Gothic Revival, is said to have observed: "You will soon come back to what I have taught you."

Interesting specimens of Mr. Belcher's earlier manner are warehouses for Rylands and Co. in Wood Street, London; Stowell Park, Gloucestershire, for the Earl of Eldon; the Curriers' Hall, London Wall; and the Catholic Apostolic Church, Camberwell.

Mr. Belcher eventually returned to Classicism and the later Renaissance, out of which he developed a style peculiarly his own. A visit to Italy stimulated his enthusiasm for the Renaissance. The strong influence which Italian work exerted over him is perhaps best seen in the building for the Institute of Chartered Accountants, in Swan Alley, a turning off Moorgate Street, London. This building was designed in conjunction with Mr. Beresford Pite. The difficulties in connection with it were considerable, the site being strictly limited and closed in by narrow thoroughfares. It would seem, however, that the limitations of the site acted as an inspiration, for the result is a building which is full of interest by reason of its architectural vigour—remarkable also for the sculpture which adorns its exterior (by the late Mr. Harry Bates and Mr. Hamo Thornycroft) and for the decorative paintings within.

The Town Hall at Colchester and the Guildhall at Cambridge are good examples of Mr. Belcher's civic work, both being of simple but dignified design.

He carried out many important commissions in the country, Cornbury Park, Oxon, and a large house for Mr. Donaldson at Pangbourne being characteristic examples of his domestic work. But it is in town buildings, especially those in the City of London, that he achieved the greatest success. Electra House, Finsbury Pavement, for instance, is a fine type of the modern city office building—broad, imposing, and masculine in treatment, yet distinguished throughout by gracefulness and delicacy of detail.

Towards the end of his career Mr. Belcher's work, so far from declining, showed signs, if anything, of an increasing vitality. His manner developed more and more in the direction of pure Classicism, as may be seen in the building for the Royal Society of Medicine, in Henrietta Street, the new premises for the Zoological Society, in Regent's Park, and the Whiteley building, Bayswater.

Among the monuments which he designed are the memorial fountain in Park Lane and the pedestal of the statue to General Gordon in Trafalgar Square. But his most striking conception in this field of design is the Ashton Memorial, Lancaster, a domed building 220 ft. high situated on an eminence and commanding extensive views of the surrounding country.

In addition to the buildings already mentioned, Mr. Belcher's executed works include: Mordon Grange, Blackheath; buildings in the Poultry, Cheapside; "Bearroc," Berkshire; Eyot Villa, Chiswick, and other houses in Chiswick Mall; Tapeley Park, Devonshire; The Towers, Pangbourne; Boxley Park, Kent; Kington Church, Warwickshire; South Marsdon Church, Wiltshire; Winchester House, London Wall (a large office building); premises for Mappin and Webb in Oxford Street; offices for the Royal Insurance Company, Piccadilly, and many others. He also completed the Catholic Apostolic Church, Gordon Square. The last work upon which he was engaged was the Mappin Terraces at the Zoological Gardens, which were recently illustrated in this journal. He built for himself about thirty years ago the characteristic house, Redholm, where he died.

Mr. Belcher, who was of a very modest disposition, gladly acknowledged the assistance that he received from others in his professional work. After the presentation to him of the Royal Gold Medal, in 1907, he said: "I have always aspired to do really good work, and if I have achieved success in this respect let me acknowledge at once my indebtedness to my



THE ASHTON MEMORIAL, LANCASTER.



THE INSTITUTE OF CHARTERED ACCOUNTANTS, LONDON.

THE LATE JOHN BELCHER, R.A., ARCHITECT.

Reproduced by courtesy of Mr. B. T. Eatsford.

association with so many great sculptors, such, for instance, as my old friend Mr. Ham. Thornycroft, also Mr. Harry Bates, Mr. George Frampton, Mr. Goscombe John, Mr. Drury, Mr. Pomeroy, Mr. Bertram Mackennal, and others, all of whom, at one time or another, have lent their aid in giving expression and artistic embellishment to my buildings.

"But let me assure you also that I have been most fortunate in the men who have been associated with me in the carrying out of my work. . . . Amongst the earliest of my friends was Mr. James Walter James, whose remarkable powers of organisation proved invaluable in the introduction and ordering of business methods in my office. Then came Mr. (now Professor) Beresford Pite. . . . and I think it was while he was still with me that he won the Soane Medallion with his celebrated design of a mediæval West End Club."

Among those who at some time or another gave assistance to Mr. Belcher were Mr. Harry Wilson, Professor C. H. Reilly, Mr. T. Phillips Figgis, Mr. H. C. Corlette, Mr. James B. Fulton, Mr. Lionel Detmar, Mr. Curtis Green, Mr. Herbert Ibberson, and many others who have since made considerable reputations. Some time ago he took into partnership Mr. J. J. Joass, F.R.I.B.A., and many of the important recent works were carried out under the title of "Belcher and Joass."

Mr. Belcher was an enthusiastic advocate of the introduction of painting and sculpture into buildings. On one occasion he said: "The building which shelters and provides scope for the art of the painter and sculptor is the work of the architect, and it is his to furnish the opportunities and the settings and to determine the subjects of the joint work. In all cases the artists should work together *ab initio*—in the case of a building, under the leadership of the architect; in the case of a monument, under that of the sculptor; and in the case of a gallery or other place for the exhibition of his art, under that of the painter. The true collaboration of the arts leads to far higher and nobler results than the haphazard kind of arrangement that has so long prevailed."

Mr. Belcher rendered valuable literary service to architecture. In collaboration with Mr. Mervyn Macartney he compiled a monumental work on the English Renaissance, subsequently writing "Essentials in Architecture," a small book which revealed not only a rare knowledge of architectural composition, but also a vigorous power of literary expression.

Though naturally of a retiring disposition, Mr. Belcher was ever a delightful companion, and he willingly gave counsel and guidance to those of his younger colleagues who sought his advice. He was a facile draughtsman, an able critic, and also an accomplished musician, having been connected for many years with the direction of the, Catholic Apostolic Church in London Square.

* * * As in future the illustrations in this journal, in the majority of cases, will be from photographs of buildings, the Editors invite architects to submit photographs of their recent work. When the illustrations are given as full-page plates twenty-five copies on art paper will be sent to the authors. Architects will realise that many conditions, which may not occur to them, cover the selection of illustrations for a technical journal, and that when photographs are not used it does not necessarily imply that the work is not worthy of publication: it may happen that at the moment the illustrations do not fit in with the general scheme.

For convenience in filing them for future reference, a special portfolio for the plates has been prepared, and can be obtained by subscribers free of charge on application at our offices, Caxton House, Westminster; the price to non-subscribers being 1s. net (postage 3d. extra).



COLCHESTER TOWN HALL.

THE LATE JOHN BELCHER, R.A., ARCHITECT.

CORRESPONDENCE.

The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents, who are asked to be brief, and to write on one side only of the paper.

Shearing Forces in Beams.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—The theory of vertical shearing forces in beams is one of the easiest to realise by ordinary reasoning, and yet in several elementary books the diagrams for such forces do not agree with the ordinary rule, which is quite simple. The shearing force at any point of a beam is equal to the reaction at support A or B less the load between such reaction and the point. In certain loadings these two results may vary, in which case the greater is to be taken. In one such text-book an example is given with tabulated forces for several points, all of which are correct, but the diagram is wrong; for at 12.5 feet from left-hand support the shearing force measures 1.5 tons, whereas it should be zero.

In another well-known and excellent manual on graphic statics an example is given which again is wrong on exactly the same point at issue. I have chosen the latter example for illustration, giving, however, numerical values to the original sketch. The difficulty seems to arise when concentrated loads and distributed loads are mixed. In Fig. 1 the loads and reactions are clearly marked.

At the left-hand support as a point in the length of the beam there are 14.875 tons going up on the left of the point and 14.875 tons coming down on the right of the point, clearly producing a shear force of 14.875 tons.

At point A the load coming down on the right of it is clearly three tons less than 14.875, viz., 11.875, while the force going up on the left of it is 14.875 less three tons (distributed load) coming down, so that the shearing force here is 11.875 tons.

Again, at point B the force going up on its left side is now reduced from 14.875 tons at support (by six tons distributed load coming down) to 8.875 tons, the shearing force at the point.

Considering the matter in the same way from the right-hand support, we have shearing at the support 13.125 tons, at point D two tons less, or 11.125, at point C three tons less, or 8.125, then suddenly two tons less by the concentrated load, or 6.125, and finally at point B still five tons less, or 1.125.

For point B, then, we have 1.125 from right-hand support and 8.875 from left-hand support, the greater to be taken, but the meaning of this will be clearer by examining Fig. 2, where it will be seen that the downward action of the 10 tons at B is supported by 8.875 tons going up the left side and 1.125 tons going up the right side, the sum of these two just balancing the 10 tons.

Fig. 3 shows the same result worked out by the funicular polygon so well described in the same book, but it should be noticed that the funicular polygon cannot be used as a bending moment diagram when multiplied by the polar length unless the distributed loads were given effect to by divisions between a b, c d, and e f, which would give a curve something like f x y z; but this makes no difference to the total shearing forces, which are the same whether the loads are concentrated or distributed.

ROBERT F. SHERAR.

Book-keeping for Architects.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

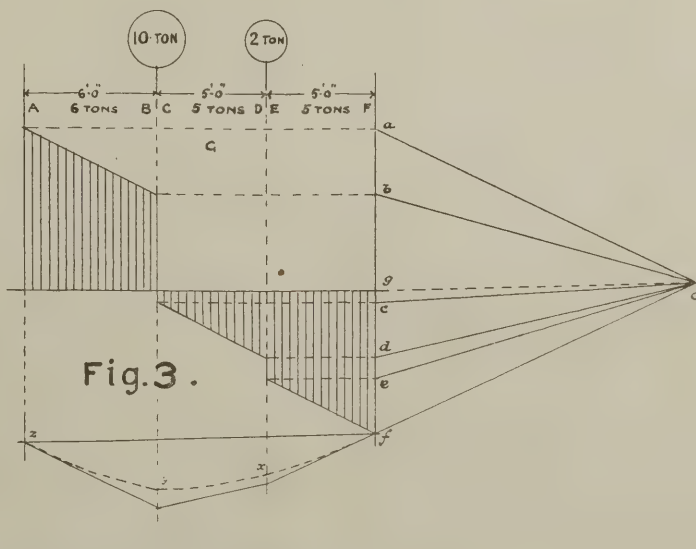
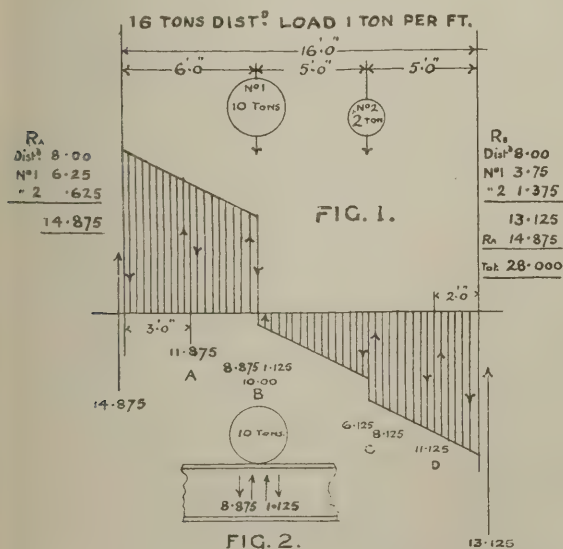
SIRS,—As the author of the reply on this subject in your issue of October 29th, I must disclaim any intention of advising architects in established practice to refrain from keeping accounts, as your correspondent, Mr. Levie, seems to suppose. My answer was addressed to a young man contemplating practice, and was intended to be illustrative of the need for a sense of proportion and the futility of a system disproportionate to the amount of business it controls, as the context will show. If the quotation made suggests to him that I decry account-keeping I hasten to correct it.

At the same time, however, it does not appear to me that (in the early days of practice, at least) it is quite such a simple matter as he implies to "remove weaknesses" and "stop all waste and losses" by a mere scrutiny of the annual statement of accounts. In many cases such a document summarised would show:—

Office rent, and expenses	By washing	£160
in connection with (say	By one second premium	10
six competitions	By contributions to Press	20
£110		

The obvious inference would be (on strict financial principles)—abandon further participation in competitions and specialise on washing; but is this commercial view the right one?

G.



DIAGRAMS ILLUSTRATING SHEARING FORCES IN BEAMS.

THE CONDITIONS OF BUILDING AND ENGINEERING CONTRACTS.—VII.

Being an Explanation of the Clauses of the General Conditions of Specifications and the Legal Decisions affecting them.

SPECIALLY CONTRIBUTED BY E. J. RIMMER, M.Eng., B.Sc., A.M.Inst.C.E., of Lincoln's Inn and the Northern Circuit, Barrister-at-Law, and KENNETH G. THOMAS, B.A., LL.B. (Cantab.).

(Continued from page 49, No. 983.)

Parenthetical numbers in the text refer to cases noted at the end of each section.

CHAPTER V.

PAYMENT.

The clauses in a contract dealing with the payment of the contractor provide, as a rule (i) that when, in the opinion of the engineer, work has been done and materials brought upon the site to the value of a specified amount, the engineer shall issue a certificate (called a "progress certificate") declaring such value, or that at definite periods (usually monthly or once in two months) the engineer shall issue a progress certificate declaring the value of work done and materials brought upon the site; (ii.) that the contractor, on presenting such certificate to the building owner, shall be entitled to receive in payment a sum equal to a certain specified percentage (usually 80 or 90) of such value; (iii.) that, on completion of the work under the contract, the engineer shall issue a "final certificate" which shall declare that the work has been completed to his satisfaction and shall state the amount due to the contractor in respect of the contract price; (iv.) that, upon presentation of such certificate to the building owner, the contractor shall be entitled to receive in payment a sum equal to a certain specified percentage of such amount; and (v.) that the balance shall be paid as the contract directs, e.g., one half the balance at the expiration of six months from the issue of the final certificate, and the other half at the end of the period of maintenance (see ante Chapter III.). Some contracts also contain provisions that no part of the contract price shall become due or payable until the certificate of completion has been issued by the engineer, but that advances may from time to time be made to the contractor on progress certificates, and that the building owner may refuse to make advances on such certificates in the event of their being endorsed by the engineer, that in his opinion the contractor is not proceeding satisfactorily with the work, or does not intend to complete it, or for such other reasons as may be stated in the contract.

Progress Certificates.

In large contracts, even when, according to the terms of the contract, no money is due to the contractor from the building owner until the work under the contract has been completed, it is customary for provision to be made for the contractor to receive from time to time sums of money on account as the work proceeds, on the authority of progress certificates issued by the engineer in the manner provided by the contract. When it is stated in the contract that no money shall be paid to the contractor except on production of such certificate, the issue and presentment thereof is a condition precedent to payment.

A progress certificate in such circumstances is a declaration that, approximately, work has been done and materials brought upon the site to the value of a specified sum of money. "The function of a certificate of this kind . . . is this. The engineer of the company is expected by the company to inform them whether they have sufficient value on their premises in the course of the execution of

the contract, either in goods or materials supplied, or in the cost of working up those materials, which, of course, renders them more valuable, whether there is sufficient in either of those forms to justify an advance. The certificate is not sent in as a bill for payment; there is no such bill at that time. . . . If extra work has been ordered the extra work will be added in a separate bill, and paid for by a separate payment. But when the company want to know whether or not they are in a condition to make an advance, they ask the engineer, 'What value have you got in the shape of materials and work, and can we make the advance?' " (47.)

A progress certificate is not in any sense an approval of the work certified for, and the building owner may dispute the quality of such work after such a certificate has been issued. "The certificate I look upon as simply a statement of a matter of fact, namely, what was the weight and what was the contract price of the materials actually delivered from time to time upon the ground; and the payments made under those certificates were altogether provisional, and subject to adjustment or to readjustment at the end of the contract." (48.)

But in view of the fact that a lay mind naturally associates the issue of a certificate very closely with the approval of work, the terms of the contract in regard to this matter should be clear and unmistakable.

It has been held that the issuing of a progress certificate creates a debt due from the building owner to the contractor (49), but it is submitted that no such debt would be created where the contract provided that no money was due or payable to the contractor until the final certificate or certificate of completion had been issued; for in such case the method of payment on progress certificates is merely for the convenience of the contractor.

In regard to such a contract, i.e., where it is provided that no money is due or payable to the contractor until he has completed the work to be done under the contract, and that the advances made to him from time to time on progress certificates are merely for his convenience and by way of loan, it is possible that where, a number of advances having been made to the contractor, the contract is not completed owing to the contractor's default, the building owner would be able to recover from the contractor the amount of the advances already made. It would, however, be unsafe to assert this as a definite proposition. The Courts in interpreting a contract consider each clause in relation to the others, and if the contract as a whole shows an intention that the advances above referred to shall be payments on account of money due to the contractor, or provides other specific remedy for such breach of contract than that of recovering the amount of the advances made on progress certificates, e.g., a right to charge them with the extra cost of having the work completed by another contractor, then the Court will probably hold that the contractor is entitled to retain the money he has been paid.

Final Certificate.

Upon the completion of the work to the engineer's satisfaction (see Chapter III., ante) it is his duty to issue a final certificate (which may be sent either to the contractor or to the building owner, as the contract provides) stating the amount due to the contractor in respect of the contract price; and it should be noted that a certificate of final payment imports satisfaction. The importance of this certificate cannot be overrated, because in ordinary circumstances it has two characteristics of considerable weight:—

(1) *It is final*—not only against both the parties to the contract but against the engineer himself, for, having issued a valid certificate, he cannot issue another, even if his desire is to correct statements in the first. (50.)

(2) *It is a condition precedent* to any action upon the contract. It imports satisfaction; but until it is issued the necessary condition that the work shall be completed to the satisfaction of the engineer is not complied with.

These characteristics of a final certificate may, however, be lost in several ways.

(a) In order that a certificate may be final and binding on both parties, certain conditions must be fulfilled. The certificate must not only purport to be final, but it must also be clear from the terms of contract that it is the intention of the parties that such certificate shall be final and binding. Thus an arbitration clause or a clause giving power to the building owner to reopen the contract may affect the finality of the final certificate. In one case (51) it was provided that payment should be made upon the certificate of the engineer that certain locomotives supplied under the contract were in perfect order but the subsequent clause referred "all disputes" to arbitration. This clause was held to destroy the finality of the engineer's certificate. In another case (52) where a contract contained a clause that "No certificate shall be considered conclusive evidence as to the sufficiency of any work or materials to which it relates, nor shall it relieve the contractor from his liability to make good all defects as provided by this contract"; followed by a provision referring all disputes to arbitration and giving the arbitrator power to open up review, and revise any certificate and to determine all matters in dispute, it was also held that the finality of the certificate was destroyed.

On the other hand certain matters may be expressly excluded by the contract from the arbitration clause and left to the sole discretion of the engineer, in which case his final certificate in regard to them will be conclusive. So, where an arbitration clause referred all matters to arbitration "unless provided for in the foregoing clauses," the finality of certificates in regard to the preceding clauses was held to be preserved. It is usual, therefore, to exclude from the arbitration clause all questions with regard to the quality and quantity of workmanship and materials.

(b) *Fraudulent or improper collusion* of the engineer with the building owner

will destroy the finality of the certificate and enable the contractor to sue upon the contract without previously obtaining a certificate; but fraud is an extremely difficult plea to establish. A certificate is not necessarily fraudulent because it is made inaccurately or carelessly, and it is a rule of law, established by the House of Lords, that there is no distinction between moral and legal fraud. One case (53), however, in which no fraud was alleged, appears to establish that if the building owner, knowing that the engineer has wrongfully refused or delayed to make a certificate, has taken advantage of it to refuse or delay payment, he will be liable to an action upon the contract by the contractor, notwithstanding the withholding of a certificate. Mr. Justice Phillimore reviewed the authorities and said:—

"I am of the opinion that the decisions are clear that where the employer colludes with the engineer, surveyor, or valuer, it is right to pass the engineer, surveyor, or valuer by, and to seek the determination of the courts as in an ordinary contract; and I see no difference between the misconduct of the engineer, surveyor, or valuer being procured by the employer, and by the employer knowingly taking advantage of the man's original misconduct."

If, however, the jury had not found that the building owner had knowingly taken advantage of the engineer's improper conduct, it appears from Justice Phillimore's judgment and the authority of another case (54) that the proper remedy for a contractor in case the engineer refuses or delays to make a certificate, is to call upon the building owner to appoint another engineer to make the certificate before taking action.

(c) An engineer in giving a certificate is acting in a quasi-judicial capacity, and has, therefore, the protection of a judge as regards unskilfulness or negligence. He must, however, throughout the period of construction, preserve a strict attitude of judicial independence, and if he fails to do so he is no longer fit to be a judge, and his certificate will fail to be a final adjudication or a condition precedent to payment. The House of Lords have recently made this point very clear in the consideration of a case (55) in which the architect had (as clearly shown by the correspondence) acted by the direction and in the interests of the building owner. The Lord Chancellor said: "It is not in my opinion a case to which the terms 'turpitude' or 'fraud' are apt. I think the real error of the architect was that he mistook his position, that he meant to act as a mediator; that he had not the firmness to recognise that his true position was that of an arbitrator and to repel unworthy communications made to him by the building owners."

In another case (56), it was alleged that the building owner had interfered with the surveyor (their servant) in the exercise of his discretion; and on proof of this the Court refused to recognise the finality of the certificate.

(d) The power of an engineer or architect to make a binding certificate may be lost by the discharge of the contract under which his powers are conferred. Thus, if there is no provision expressly preserving the rights of the building owner and liabilities of the contractor upon forfeiture (see Chapter VII., *post*), the power of the engineer or architect will cease to subsist upon the contract being terminated.

(e) The building owner may waive the final certificate, as it is for his benefit; but it appears that where the contract making the issue of a final certificate a condition precedent to payment is under seal, the

waiver must also be under seal, or that there must be consideration for it. Very explicit action on the part of the building owner will, however, be required in order that a waiver of this clause may be inferred. The taking possession of his own land upon which the work has been constructed is not such a waiver (57).

Retention Money.—It has been stated that, on the engineer's certifying that work has been done and materials brought upon the site of a certain value, the contractor receives in payment a percentage of that value. The money kept in hand by the building owner is termed retention money, and it is in the nature of a security for the building owner against failure on the part of the contractor to complete the contract or to make good defects, to satisfy rights of indemnity for damage to adjoining property, etc. The usual mode of provision for the payment of retention money is that half shall be paid when the engineer issues his final certificate and half at the expiration of the period of maintenance, but other arrangements may be made by the contract (see *ante*, Chapter III.).

In the event of forfeiture, the rights of the parties to retention money will be determined by the provisions of the contract. If it is agreed that, upon failure to complete, the retention money shall be forfeited to the building owner, a question may arise as to whether the sum is in the nature of a penalty or liquidated damages (see p. 448) but, *semble*, where it is expressed in the contract that no money is due to the contractor until the work has been completed, but *ex gratia* advances are made to him by way or loan, on progress certificates issued by the engineer, then the building owner, upon failure of the contractor to complete, will be absolutely entitled to the retention money in hand.

It is not uncommon for a contractor who is in financial difficulties to assign retention money as security for debts to tradesmen who supply him with materials and plant. The assignee in such a case, however, obtains no better title to such money than his assignor, so that the rights of the former will depend on the term of the contract; and where the contract contains a clause that neither the contract nor any benefit nor any part of a benefit under it shall be assigned, any assignment of retention money is invalid.

On the bankruptcy of the contractor, if the Trustee in Bankruptcy disclaims the contract as onerous, he will not be entitled to the retention money. If, on the other hand, the Trustee elects to take up the contract he will be bound by the terms thereof, and the building owner, in respect of retention money, will be in the same position as regards the Trustee as he would have been as regards the contractor.

Cases referred to in the Text:

(47.) *Thorsis Sulphur & Copper Co. v. McElroy & Sons* (1878) 3 App. Cas. 1040. Per Lord Hatherley at p. 945.

(48.) *Ibid.* Per Lord Cairns.

(49.) *Pickering v. The Ilfracombe Railway Co.* (1868) L.R. 3 C.P. 235.—The Railway Company's engineer issued a progress certificate for £56,200 for work done and materials supplied. The Company issued to the contractors, in part payment of the said amount, £56,200 fully paid-up shares, and assigned to them a coming call for the balance of £40,000. It was held (*inter alia*) that there was consideration for the assignment, a debt due having been created by the issue of the progress certificate.

(50.) *Freeman v. Jeffries* (1869) L.R., 4 Ex., 189. In accordance with an agreement between the parties two valuers made a valuation of a farm to form the basis of an arrangement between the outgoing and the incoming tenant thereof. The plaintiff afterwards discovered that errors had been made in the valuation by the inclusion of items therein which, by the custom of the country, ought not to have been valued to him. He sued for recovery of the money paid under mistake. *Held.* That he could not recover such money, the certificate of the valuers being final as between the parties.

(51.) *Hohenzollern Actien-Gesellschaft für Locomo-*

tivbau v. The City of London Contract Corporation, Ltd. (1886) 2 F.L.R., 470; 2 H.B.C., 36. The contract provided that locomotives should be constructed according to plans and to the satisfaction of the engineer on whose certificate payment was to be made; and it contained an arbitration clause providing that all disputes were to be referred to arbitration. The engineer declined to certify, and the contractors demanded an arbitration. *Held.* That a dispute as to the certificate was a dispute within the arbitration clause, and that the absence of a certificate was not conclusive against the contractor's claim to be paid.

(52.) *Robins v. Goddard* [1905] 1 K.B., 294.

(53.) *Kellett v. New Mills U.D.C.* (1900) 2 H.B.C., 330. The jury found that the works had been completed by the contractor and that no certificate of completion had been given, that the engineers never addressed themselves to determine and certify that the works had been completed or what was the sum due to the contractor, but that they had refused or delayed so to determine and certify. They further found that the building owners were aware of such refusal or delay and took advantage of it to refuse or unreasonably delay payment. Upon these findings by the jury the judge gave judgment for the contractor.

(54.) *Clarke v. Watson*, 34 L.J.C.P., 148.

(55.) *Roberts v. Hickman* (1913) A.C., 229; 108 L.T., 430.

(56.) *Page v. Llandaff and Dinas Powis R.D.C.* (1901), 2 H.B.C., 437. Disputes arose between the defendants surveyor and the contractor, and after long negotiation the former gave a final certificate. *Held.* That the Council had interfered (though without fraud on their part) with the surveyor in the exercise of the latter's quasi-judicial function, and that the final certificate was not final and binding on the contractor.

(57.) *Munro v. Bull* (1858) 4 Jur. (N.S.) 1231. Certain buildings were to be completed at a stated date to the approval of a surveyor. They were completed five days after the said date, but the surveyor declared that they were incomplete and refused his approval, which was a condition of payment. The builder sued and the defendant pleaded (1) That he had not dispensed with completion at the stated date and (2) That the surveyor had not issued the requisite certificate. The defendant was then in occupation. *Held.* That both pleas were good and that the mere fact that the defendant had taken possession did not certify that he had waived the conditions of the contract.

BOOK NOTICES.

Heraldry for Craftsmen.

Heraldry would be a more popular study than it is if the books dealing with it were less recondite. They are apt to obscure where they ought to illuminate; and hence, since craftsmen of several denominations have to deal pretty frequently with coats-of-arms, and, in order to treat them satisfactorily, should know at least a little of the antique science, it was a happy thought to provide them with a text-book written and illustrated with their special needs in view.

A few of the difficulties that confront a craftsman who is required to make an heraldic design are enumerated by the author, Dr. W. H. St. John Hope: "Must a shield always be surmounted by a crested helm? Should the helm face any special way according to the degree of the bearer thereof? What are the ordinary relative proportions which helm and crest should bear to the shield? May a shield be set askant as well as upright? Should a torse be drawn with a curved or a straight line? Is it necessary to represent the engraved dots and lines indicative of the tinctures? What are supporters to stand upon? Are they to plant their feet on a ribbon or scroll, or on a flowering mound, or what? May arms entitled to have supporters be represented without them? What are the simplest elements to which a shield of arms may be reduced? as, for example, in a panel some 60 ft. or 70 ft. above the eye, and when but a small space is available."

Desolating doubts like these will not harass the craftsman who grasps the principles that are so clearly explained in Dr. Hope's beautifully produced and copiously illustrated book, which should interest and instruct, not to say fascinate, a public far larger than that indicated in the title.

"Heraldry for Craftsmen and Designers." By W. H. St. John Hope, Litt. D., D.C.L. With diagrams by the Author and numerous Illustrations, Coloured Lithographs, and Colotype Reproductions from Ancient Examples. London: Wm. Hogg, 13, Paternoster Row, E.C. 432 pages, 4½ ins. by 7¼ ins.

THE DAWN OF THE EIGHTEENTH CENTURY.*

BY A. E. RICHARDSON.

WITH the period of the Restoration of the Monarchy, the modern spirit, in the fullest meaning of the term, comes into being. Its definition implies the spirit of research, the desire for exactitude, a minute acquaintance with detail, the correct analysis of facts, and the right understanding of character. In relation to architecture, it not only means the inception of the spirit of constructive criticism, but marks the positive temper which extended the stream of Classic development already in being. The first half of the seventeenth century had witnessed many fruitful voyages of discovery and research, made in a period teeming with adventure; but the time had now arrived to turn to fuller account the riches already gathered. And for the first time since its inception in England, the neo-Classic becomes distinctive as a national style, understood and appreciated by all classes of society.

Meanwhile, events in the field of research were developing apace, and Englishmen were again casting eyes on the monuments and sculpture of Old Greece.

The Successors of Inigo Jones.

Early in the seventeenth century, Inigo Jones used his copy of Palladio as a key to the architecture of Rome. His consummate reticence in the handling of masses enabled him to adapt the architecture of the past in a strikingly original manner; but the full development could not be encompassed by the labours of one man. John Webb, his pupil, very ably translated his manner, but his work lacks that quality of audacity which distinguished the work of the master. Marsh, a contemporary, appears to have carried out works at Bolsover, Notts, after the Restoration, and later built Nottingham Castle. Sir Balthazar Gerbier, a Dutchman, who first appeared in England in 1617, was a contemporary of both Webb and Marsh. He is credited with the design of a banqueting room for himself near York Stairs, as well as the design in 1661 of four triumphal arches for the Coronation of Charles II., placed respectively at Leadenhall Street, Cornhill, Cheapside, and Fleet Street. Through the energies of these three men, the comparative artistic blank of the Commonwealth is redeemed and the sequence of the tradition maintained. Two other architects must now be introduced as being in practice at the time. The first is Sir John Denham, who at the Restoration was appointed by Charles II. Surveyor-General of the Royal Works; he had as assistant John Webb, and appears to have opposed Wren's appointment to the surveyorship. Evelyn remarks of Sir John Denham in connection with the building of Greenwich Hospital, "Knowing Sir John to be a better poet than architect, though he had Mr. Webb (Inigo Jones's man) to assist him." The other name is that of Hugh May, a friend of Evelyn who was appointed, in 1660, paymaster of the King's Works. He also was disappointed by Wren's securing the surveyorship. His works, including Cassiobury, Herts, follow the Palladian school of Inigo Jones. Evelyn also mentions a Mr. Pratt who designed Clarendon House, Piccadilly, 1664, and who was one of the company of surveyors including Evelyn, Wren, and

May, who, on August 27th, 1660, visited the ruins of Old St. Paul's Cathedral to survey for the projected reparations.

Evelyn was no mean designer, and advised his numerous friends about the arrangement and style of their houses and gardens; among other works he translated Frear's Parallels of the five orders of architecture, in which he vaguely hints of the three Greek orders. His knowledge of libraries and collections of books was at the period the most thorough in England, and it is more than possible that many rare architectural books were introduced to the notice of Sir Christopher Wren through his agency. Such works as "Romæ Antiquæ urbis splendor," by G. Laurus, 1612, "Roma Antica et Moderna," by Franzini, 1663, and Rossi and Falda's book on Rome, published in 1665, are among the works likely to have been consulted. In 1663, there appeared a small quarto volume dealing with the orders of architecture according to Palladio, by Godfrey Richards, with an appendix touching doors and windows by Le Muet. This is the book which reached the journeyman of the time. Evelyn mentions several instances of the introduction of the French manner in designs, especially in interior fittings. It is clear, therefore, that with Wren's visit to Paris and resulting strong impression of French methods, the tradition was affected somewhat disastrously in this direction.

The School of Wren (1660—1720).

To understand this phase of neo-Classic architecture, it is of importance to remember that in England at this period the social status it enjoyed was far higher than that held by the architecture of to-day. The splendid Court of Louis XIV. had gathered to it all that was best in the art circles of Europe. Works were undertaken on a scale approaching Roman grandeur; and for the ensuing period of half a century French architecture acted as a magic touchstone to the arts of Europe. Notwithstanding the desire of the restored English Court to bring about a drastic change towards French taste, the even tenor of Palladian doctrines was unswervingly followed. For a time English architecture showed a sympathetic tendency towards French ornamentation, but this was fortunately short-lived; the national reticence encouraged artists to turn once more for inspiration to Italian models, and thence to the ancient monuments of Rome.

Through the continued and brilliant achievements of Sir Christopher Wren, not only was the continuity of the tradition assured, but it gradually developed an additional academic interest which, apart from the number and character of the buildings erected, form even to-day the most prominent landmark in the Neo-Classic movement. At the outset of his career, Wren, almost without training, was brought face to face with immense problems. He had to grip all the requirements of a building and to work in a style which should be capable of sustained and noble dignity. His repeated successes in this difficult task gradually led him to appreciate the law of restraint, and in the full maturity of his later work is seen evidence of an accomplished manner and detail akin to the work of Inigo Jones.

An analysis of the Wren style proves that in the mind of the architect regard

for scientific composition guided his every action. Each of the component masses of his buildings is well chosen, directly and soundly, almost with unerring instinct for proportion in every case. There is, however, a sense that something subtle, lacking, perhaps in the quality of the detail, possibly in the application and selection of the ornament; but it is mainly attributable to the startling thoroughness of purpose which placed mass before other considerations. Wren accomplished what Inigo Jones had only dreamed; he elevated English architecture to a level it had never reached before, and he dealt with plain facts and reduced them to terms of architecture which all men could read. No architect, however, has ever succeeded in escaping from the fashions of his time, and in common with the lesser men of the period Wren's work reflects immaturity of taste which at the time passed unnoted. He worked during years when pedantry was almost unknown. That he used the forms of Classic architecture as a vehicle of expression was merely an incident; he viewed architecture with the eye of the scientist who from the outset creates in embryonic form that which he afterwards essays to construct.

Christopher Wren was born at East Knowle, in Wiltshire, on October 20th, 1632, and died in St. James on February 1st, 1723, in the ninety-first year of his age, having laboured for sixty years in the cause of architecture. In 1661, then nearly thirty, he was appointed assistant to Sir John Denham. In 1663 he entered upon his first commission, Penbroke Chapel at Cambridge, for his uncle, Matthew Wren, and in the same year he began the Sheldonian Theatre at Oxford, famous for the construction of the roof, but not very convincing as a piece of design. In 1665 he designed the inner Court of Trinity College, Cambridge.

In the same year, says Walpole, he visited France and, unfortunately, went no further. He spent six months studying the architecture of Paris and the country round; noting the great school of architecture then flourishing in Paris, at that time the finest in Europe, fortified as it was by the congregation of designers and craftsmen brought together to fulfil these great works. An academy of painters, sculptors, architects, and the chief artificers met in Paris every first and last Saturday in the month to discuss progress. While in Paris Wren met Bernini, who gave him a few minutes' view of his design for the Louvre. Wren comments: "It was five little designs on paper, for which he received as many pistoles: I had only time to copy it in my fancy and memory." Wren returned to England with "a France on paper," full of impressions of the style Louis XIV. and eager to put his genius to the trial.

Wren's Work After the Fire.

After the Great Fire his services were constantly in demand. In his capacity of Surveyor-General he drew up a master plan for rebuilding the City which the King approved, but, owing to various causes, this fine scheme was reluctantly abandoned and the old tortuous ways of the mediæval city were once again perpetuated.

Wren's attention was next occupied by the rebuilding of St. Paul's Cathedral and the majority of the City churches, an un-

* Substance of the second of a series of lectures on "The Work of the English Architects of the Eighteenth Century and the neo-Classic School of the Nineteenth Century," now being given on Thursday evenings at University College, Gower Street.

dertaking which extended over forty years; and in addition he became architect or gave designs for new buildings of every description throughout the country. Among other works he remodelled the incomplete palace at Greenwich, and was instrumental in after years in its conversion to a hospital. In 1682 he began another riverside institution, Chelsea Hospital. In 1682 he rebuilt Christ's Hospital, Newgate Street, and in the same year the refined Temple Gate House, Fleet Street, and many buildings within the precincts of the Temple.

The Customs House, Temple Bar, and the Monument at London Bridge were rebuilt shortly after the Fire. In 1673 he designed the group of buildings forming Greenwich Observatory, and in 1678 he prepared a design for a monumental mausoleum to the memory of Charles I., following the design of the Temple of Vesta at Tivoli. After the year 1682 Charles II. projected another scheme for a palace at Winchester, which Wren began, and the main roof was roofed in when the death of the King stopped the work. He also prepared plans for the completion of the palace at Whitehall.

With the accession to the throne of William and Mary, the design and construction of the two Royal palaces were entrusted to Sir Christopher Wren—Hampton Court and Kensington. Several designs were made for the former, and the Queen selected one of uncommon elegance. The King, however, chose the present design, which had been merely prepared as a foil to the others, and, much to Wren's grief, he was obliged to erect a design he disliked.

NEW MUNICIPAL WORKS.

The Local Government Board have held or have decided to hold enquiries into proposed expenditure by public bodies as follows:—

Sewerage, Drainage, and Sewage Disposal.—Hartley Wintney Rural District Council, no amount stated (November 13); Petersfield Rural District Council, £7,750 for Lyss (November 18); Croston Urban District Council, £3,085 (November 19); Aylesbury Rural District Council, £3,190 for Bierton with Broughton; Barrowford Urban District Council, £3,400 (November 20); Wycombe Rural District Council, £1,700 for Princes Risborough (November 21).

Street Improvements.—Colwyn Bay and Colwyn Urban District Council, £1,844; Saint Mellors Rural District Council, £5,400 (November 18); Llandudno Urban District Council, £2,335; Featherstone Urban District Council, £5,806 (November 19); Haydock Urban District Council, £6,489 (November 21).

Various.—Bridlington Borough Council, Isolation Hospital, £1,500; Rotherham Borough Council, motor fire-engine, £1,000; Barnet Urban District Council, public convenience, £4,400; Swindon Borough Council, electricity undertaking, £9,200 (November 18); Neath Rural District Council, £9,536 for electric lighting for Blaenrhondda, Coldfrank, Duffryn Clydach, Dylais Lower, and Llantwit Lower (November 20); Neath Borough Council, ditto, £5,000; St. Helens Borough Council, gas undertaking, no amount stated (November 21); Wrexham Rural District Council, town planning, no amount stated (November 28).

NATIONALITY IN ART.*

BY H. M. FLETCHER, F.R.I.B.A.

An architect has so much to learn in so short a life that he is apt to fear lest the consideration of subjects not directly bearing on his work be a waste of precious hours. But there may, after all, be something gained by the exploration of such abstract questions as that which I venture to bring forward.

A Definition of Art.

To begin with, let us try to be sure what we are talking about. "Nationality" is pretty clear, so we will leave it at that. But "art"—ye gods! what is art? Where Tolstoy and Ruskin and a hundred philosophers of æsthetic have failed to define, how shall we hope for success? I think we must be content, instead of defining, to adopt some limited meaning.

For the present purposes, then, let us define it as "imaginative work." I know that, if we chose, this definition would launch us on the equally stupendous inquiry, "What is imagination?" But, with your leave, we will not so choose. The treatment of tangible materials—paint and canvas, marble, glass, stone, wood, lead, plaster, and the like—if it is to have any value, must be inspired by imagination or a power to commune with the unseen, which, in its lowest terms, is a power of conceiving final results before work is begun.

For one who is sensitive to quality it takes little experience in any department of human work to recognise when he is in the presence of something first-rate. You know the feeling—an impulse to catch and hold the breath while you watch how it is going to work out; a sense of the difficulty of the undertaking; a feeling that one false step may mar everything, then a growing confidence in the easy mastery of the performer; a thrill of silent delight from the depths of your being at the perfect fitness of means to end; the almost unconscious realisation that what you contemplate is taking the very shape, and no other, that it ought to take; and, as a final conclusion, a perception of the infinite sweep and power of spirit over matter. Even where the subject is solemn or tragic, to those whose keenest interest is reserved for treatment the emotion aroused by meet handling is far nearer to delight than to pain, and "Othello," Keats's three or four most perfect odes, certain essays of Bacon that seem to contain the distillation of all wisdom in a page and a half, the glass at Chartres, Karsavina's dancing, Wren's houses at Chichester and Salisbury, Beethoven's "Coriolanus" overture, the silk painting of Chinese geese at the British Museum, different in scale and importance and mutually incomparable as they may seem, do yet, to use a vulgarism, all "get there" alike, do all rouse that delighted recognition by doing what they set out to do so fully and concisely that you cannot conceive it so well done in any other way.

Racial Characteristics.

It would be tedious to make a catalogue of all the arts, but there may be some interest in recalling some of the most marked characteristics of the different races. We must leave the East on one side—the question is too large—and also the semi-Eastern, Slavonic, and Balkan peoples, who have only within the last century begun to make their mark upon the artistic history of the world. After all, the nations that count for most with us

are the five great nations of Western Europe—Italy, Spain, France, Germany, and England—and I do not think it is too much to claim that they count for most, and will continue to count for most, with the world at large. The first broad division, and the one that goes deepest, is that of Latin and Teutonic, which, in artistic matters, corresponds persistently throughout the ages with the division between the Classic and Romantic ideals—the art that concerns itself with types, and the art that concerns itself with individuals. In connection with art it may be that Greek would be a truer race-name for the Classic ideal than Latin, for Greece is the fountain-head. But, though the artistic impulse is Greek, the actual mixture of Grecian blood in these modern peoples is negligible, whereas the Roman descent is direct and clear. And on the other sides of civilisation—law-giving, engineering, civil polity, and many others—Rome was so much of an originator, has stamped her mark so heavily on the Mediterranean states, that it is convenient and not inaccurate to keep to the usual term. In Greek art this Classic ideal, this searching for a type, is paramount.

And this preoccupation with the type, rather than with the individual or the peculiarity, is the hall-mark of the Classic or Latin school of art. Take French Gothic architecture. In the common acceptance "Gothic" is the antithesis of "Classic," but, though diluted with the Gaulish, Frankish, and Norman strains, in France the Latin genius tells clearly throughout. See the gradual development, by variation in detail rather than in conception, of the great cathedrals Notre Dame, Chartres, Amiens, Rheims. Contrast it with the almost wilful individualism of Wells, Salisbury, Winchester, Lincoln, so different one from the other, so experimental. The logical French mind early satisfied itself as to the most excellent method of covering a space, and you find the simple quadripartite vault persisting all through the Middle Ages, almost to the exclusion of other vaulting systems. Our individual tendency leads us, having used this simple method once or twice, not to be content with exploring its further possibilities, but to wander off into something quite different, so we cover our vaults with a maze of subsidiary ribs, not so much for structural expression as in order to do something individual and different, until almost by happy accident they evolve themselves into a new structural method, the great fan-vaults of Westminster, Windsor, and Cambridge. Again, the French decided that height was a virtue in a cathedral; and again you see the same gradual development from Notre Dame (110 ft.) and Chartres (106 ft.) to Rheims (125 ft.), Amiens (147 ft.), and the climax in Beauvais (157 ft.), where vaulting ambition at last "o'erleaped" itself.

The Influence of the Beaux-Arts.

The great architectural school of the Beaux-Arts has continued in almost unbroken progression and imperceptible change since its foundation by Richelieu—was it not? Whatever ideas it has imported it has always translated into French. The Colonnade of the Louvre, the buildings in the Place de la Concorde, are results of the Italian Renaissance, but they are as definitely French as distinct from contemporary Italian buildings as Amiens from Milan. The Gothic outburst of the nineteenth century was sporadic and has practically disappeared, because it was outside the main line of development. We for the last hundred years have organised

* Extracts from a paper given at the Architectural Association on Monday, November 10th.

a series of piratical expeditions to Greece, mediæval France, Venice, Holland, Byzantium, and have brought home and hung the bleeding trophies all over our buildings in the shape of crude and untranslated details, forms, and decorations. The latest raid has been on the Beaux-Arts itself, and we see the usual result in an outcrop of steep roofs, zinc crestings, Greek profiles, and Union Jack glazing. The robber chieftains are waving the flag, as usual, like their predecessors, and calling out that they really have got the right thing at last. So did all the others, but they hadn't. Nothing is the right thing for us until you have translated it into the terms of its surroundings and made it English. In a dozen years the latest fashion will be what its conveyors probably call *vieux jeu*. Look at Grosvenor Place and be warned in time.

It would be interesting to speculate how far climate, and especially atmosphere, is responsible for national traits. The air of Greece is what Shakespeare calls "nimble"; there seems to be nothing between you and the sun—outlines are expressed with the divinest purity, the rocks and marbles and hills seem to beat back all the light that comes to them from the sky. Cross the Adriatic to Italy. There is a kind of sumptuousness in the very atmosphere that clothes the mountains with colour and answers to, or causes, the sumptuousness that is the note of the Italian genius. And with us, throughout our artistic development the most curious thing, considering what manner of men we are in other respects—empire-builders, freedom-lovers, constitution-makers—is our love of the pretty, the small, the homely. Is not this to be traced to the small scale of the English landscape, divided by hedgerows, bounded with woods and copses, changing at every county with the geological variety of the soil, and limited for many days in the year by the moist atmosphere that cuts off everything beyond a range of two or three miles?

Nationality or Cosmopolitanism?

Well, what is to be done about it all? What is to be the outcome? Is nationality a valuable factor in art? Are we to foster it by cooping each nation up in its own box till inbreeding produces a weedy brood of insularities and provincialisms? Or shall we let loose a flood of washy cosmopolitanism that will break down all barriers and produce an average man and an average art all over the world? Science is seeing to it that the first alternative shall not come about. No barriers are proof against Marconi and the flying man. To guard us against the second, which, to my mind, is far more disastrous, and would indeed take much of the gusto out of life, we must trust to human nature. Half a century ago it seemed as though the deluge might come to pass. Was it not Macaulay who looked forward with a pleased certainty to the extinction of the smaller nationalities of these islands, if not of the whole world, and the final victory of the English language over all others? Happily, as it seems to me, these utilitarian prophecies have not come off, and we live in the midst of a strong and quite spontaneous revival of national feeling.

The Problem of Delhi.

Of all problems connected with nationality it is hard to imagine one more baffling than that of the new city of Delhi. Is it capable of an ideal solution? Probably not. Are the architects to work in a European manner or a native or a compromise. In the absence of any details of the final scheme beyond the ground plan, we

may still discuss these questions. If the first, they must give up the hope of enthusiastic help from their workmen and resign themselves to the uncongenial task of imposing their own ideas from above. The second alternative—a Mohammedan, Jain, or Dravidian style adapted to the complexities of modern planning by English architects may be abandoned after one shuddering glance. Conceive a whole city of Brighton Pavilions! One can, however, imagine, as a sort of compromise, a city of pillared porches and verandahs laid out, as to its main lines and masses and structure, in accordance with the published plan, but with all details of marble, stone, cement, or plaster left to the native workmen; and if there is any remnant of the old skill and sense of style left, one can imagine this finally shaping into something sumptuous and suited to the climate and the light. If fertility in conception can ensure success, Mr. Lutyens should succeed.

I am not advocating any hide-bound conservatism in regard to nationality in art. . . . Free intercourse in ideas adds a further ripening and fortifying to a mature and strong nature. Stagnation is death, and intercourse is life, but surely highway robbery is a morbid form of intercourse. . . . Let us study the art of France, of Italy, of Japan if you will, but only on condition that whatever we take from them we transmute in our own crucible.

Discussion.

Professor W. R. Lethaby, proposing a vote of thanks, said he found himself wholly in agreement with Mr. Fletcher. At one time fashions lasted for years, but now they seemed to endure only for a few months. The straight theft of third-rate French detail he considered inexcusable.

Mr. Halsey Ricardo, seconding the motion, expressed the opinion that unless "Nationality in Art" was intended to imply folk-songs and stories, and similar national characteristics, the problem became very difficult and complicated. He proceeded to show how various nationalities had been influenced by contact with others. The Romans and the Greeks, for example, planted their temples and other buildings in strange lands without the least hesitation, and quite commonly reproduced their own life on foreign shores. The point seemed to have some application to Delhi.

Mr. C. F. A. Voysey said it occurred to him that the difference was not sufficiently recognised between what had arisen from human effort and what from Divine. By the habitual ignoring of natural conditions we had quite lost the sense of nationality. The introduction of a foreign style of architecture was no more justified, in his opinion, than the assumption of a foreign accent in speaking English.

Mr. Maurice E. Webb said the world was narrowing considerably as a result of the opportunities and facilities for travelling which did not exist in former days. He thought we had to pick up the good things where we could, putting as much national feeling into them as possible.

Mr. W. E. Newton said he thought that the whole point about the Beaux-Arts question was that we wanted to copy not a type of design, but rather a method of education.

Mr. W. Curtis Green, in putting the vote of thanks, said that until we mastered the principles of Art we were useless and helpless. He liked to think of art as being at the summit of a cone, which we were all endeavouring to reach.

Mr. Fletcher briefly replied.

NEWS ITEMS.

Jedburgh Abbey for the Nation.

The historical abbey of Jedburgh, one of the finest ecclesiastical buildings in Scotland, has been transferred to the nation by the Marquis of Lothian. The story of the abbey during the nineteenth century was one of continuous lawsuits, until, in 1870, the then Marquis of Lothian built a new church, since when the old edifice has been used for public worship.

New Buildings, Leys School, Cambridge.

The new buildings at Leys College, Cambridge, of which the foundation-stone has just been laid, will be of two storeys with a basement, and will have in the centre an entrance gateway, beneath clock and bell tower. The ground floor will be used for class-rooms, and on the first floor there will be a library, a feature which will be a fine oriel window. The designs have been prepared by Sir Aston Webb.

A Book on Yorkshire Houses.

Mr. B. T. Batsford will publish early in December Mr. Louis Ambler's book upon the "Old Halls and Manor Houses of Yorkshire," which has been some years in preparation. The volume will be profusely illustrated by collotype plates, photographs, and drawings. Mr. Ambler is a Yorkshireman, and has devoted considerable study to the domestic architecture of his county. Mr. Batsford will publish the book a list of subscribers whose names are received up to the end of November.

British School at Rome.

The British Ambassador in Rome (Sir Rennell Rodd) presided last week at a meeting of the British School at Rome (Faculty of Archaeology, History, and Letters). In moving the adoption of the report, he explained that, in regard to the new home of the Faculty in the future British School, they had there that day the plans of the present design. He thought by the end of next year they might hope that a great portion of the building would be available for use. It had been possible to obtain from the municipality at Rome a small extension of the area originally conceded, and this would be available for planting and recreation. A considerable sum of money would yet be required before the scheme contemplated in the present design could be carried out in full.

Exhibition of Japanese Colour-Prints.

An exhibition of Japanese colour-printing by Mr. R. Leicester Harmsworth, M.P., will be on view in rooms 71-73 of the Department of Engraving, Illustration and Design at the Victoria and Albert Museum, from November 6th until March 21st. The collection contains a considerable number of examples of the work of earlier artists, and is particularly rich in the work of Harunobu, Shunsho, and other eighteenth-century masters, the selection having been made specially to demonstrate the rise, development, and possibilities of the Japanese method of colour printing from wood blocks. An illustrated guide to the exhibition has been prepared.

The Board of Education announce that the Victoria and Albert Museum will, in the future, be open on Sunday afternoons from 2 till 6 p.m. throughout the year, instead of from 2 till 4, 5, 6, or 7 p.m., according to season, as hitherto. This arrangement will begin on Sunday, November 2nd.

A MODERN COUNTRY HOUSE ELECTRICAL, HOT-WATER HEATING AND SUPPLY INSTALLATION.

THE varied applications of the domestic uses of electricity are well illustrated at Somerton House, Co. Dublin, the residence of Mr. T. K. Laidlaw, a mansion which has recently been reconstructed and considerably extended by Messrs. Orpen and Dickinson, architects. Electric light is used throughout the house, farm, and stable buildings, and current is also utilised there for electric radiators and power appliances.

Electric power is used to drive a stationary vacuum cleaning plant for cleaning carpets, floors, and furnishings, also for pumps to raise domestic and rain water to roof tanks in the house and to supply fire-service hydrants.

Electric bells and telephones are connected throughout the house for communicating with the servants' quarters in basement and attics, while separate telephone systems are installed between housemaids' rooms on each floor landing and to stables and outside servants' dwellings.

Electrical Plant.

The electrical generating and storage plant, which is accommodated in an outbuilding, includes the following: Horizontal oil engine, by Messrs. Tangye, Ltd., capable of developing a maximum of 22 b.h.p. at a constant working load of 19 b.h.p. with crude oil of .8 specific gravity when running at 210 revolutions per minute. The engine is fitted with a compressed air starter; a storage tank to accommodate five tons of fuel is fitted, with a projecting manhole, and is buried in the ground and connected to a hand pump in the engine house for the purpose of raising fuel oil from this bulk storage tank to the smaller tanks for the gravity supply of the engine.

The dynamo, by Messrs. the British Thomson-Houston Co., Ltd., is belt driven, with an output of eight kilowatts at 100 to 150 volts. The battery, manufactured by Messrs. The Tudor Co., con-



SOMERTON HOUSE, Co. DUBLIN. ORPEN AND DICKINSON, ARCHITECTS.

sisting of fifty-six cells contained in glass boxes, has a discharge capacity of 430 ampere hours for ten hours. Tanks for acid and distilled water are fixed on wall brackets and connected to flexible piping, which is used to fill the cells as required.

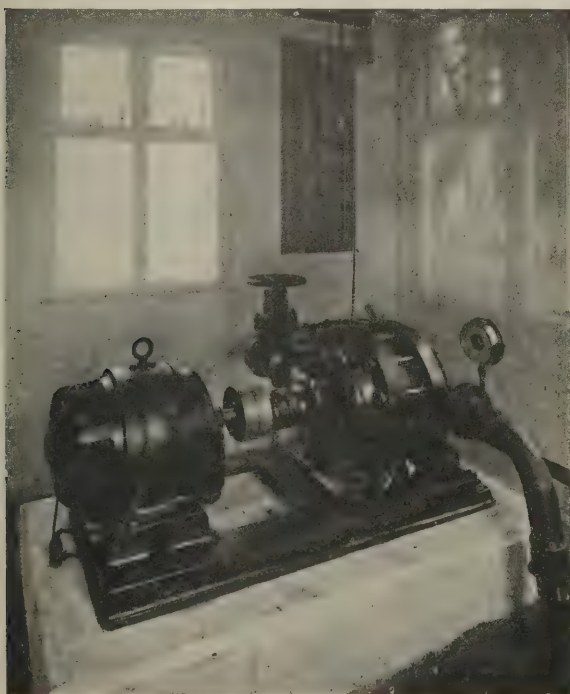
The switchboard, in the power house, is made up of enamelled slate slabs resting on channel-iron supports with iron fixtures. It is provided with an Expanded Metal door at one end.

Distributing Scheme and Wiring.

Underground cables, insulated with vulcanised bitumen, are led from the main switchboard to the house, stables,

and domestic water and fire service pumps. These cables are laid about 2 ft. below the surface of the ground in creosoted wood troughing fitted with porcelain bridge supports, filled in solid with pitch and covered with tiles.

For the branch wiring, vulcanised india-rubber conductors of 2,500 megohm grade are contained in solid drawn steel tubing carried behind walls and ceilings, except in servants' quarters and outbuildings, where the tubing is exposed and spaced out from the walls by brass hold-fasts. The tubing throughout is fixed to the iron cases of the distributing boards by lock nuts, so that the whole containing



FIRE PUMP.



RAIN-WATER PUMP.

system is continuous and also efficiently connected on earth.

The electric light fittings are of a good design, in harmony with the interior decorations. They were supplied by Messrs. Perry and Osler, of London.

Vacuum Cleaning Plant.

The stationary vacuum cleaning plant, by Messrs. The Scottish Vacuum Cleaner Co., is placed in a basement apartment. It includes a rotary pump belt driven by a 2 b.h.p. motor mounted on a combination bedplate. From thence 2-in. diameter piping is led to nozzles fixed to wall skirting boards on the several floors for the connection of flexible hose, which is led as required to the several rooms to be cleaned.

Water Supply.

The supply of water for general use at the house is obtained from a spring well about 420 yards distant, where a petrol engine pump lifts the water to a raised tank of 12,000 gallons capacity, which supplies the house by gravitation.

Well and Rain Water Pumps.

At the spring well the turbine pump, by Drysdale and Co., is capable of raising 70 gallons of water per minute against a total head of 90 ft. when running at 1,480 revolutions per minute. This pump is belt-connected to a 6 b.h.p. vertical petrol engine, by Gardner. The 3-in. diameter delivery pipes go direct from the pump to the raised storage tank and have a branch connection to give a supply of water for the cooling of the engine cylinders. A centrifugal pump, by Messrs. Drysdale, lifting 1,500 gallons per hour, is directly connected to a 2 b.h.p. shunt-wound motor.

Fire Service Equipment.

A turbine pump and direct-coupled 6 b.h.p. shunt-wound motor, by Messrs. Mather and Platt, having 1,500 revolutions per minute, is erected in the pump house at the stables. It is designed to allow the throwing of three jets of water at one time to a height of 60 ft. from hydrants accommodated in ground boxes, which are connected to a 4-in. diameter spigot and socket cast-iron pipe main led around the house.

Hot Water Heating.

The system installed is designed to maintain a temperature of 55 deg. F. in all public rooms and 50 deg. F. in bedrooms,

with an outside temperature of 30 deg. F., the air being changed not more often than twice per hour. The heating chamber in the basement contains a sectional type boiler, by Messrs. The National Radiator Co., capable of transmitting to the water 638,400 British thermal units per hour with easy and economical firing. A syphon automatic damper regulator is fitted to the boiler, by means of which the temperature of the water is kept constant. In the hall is placed a syphon regitherm, which adjusts the damper to maintain the temperature at which the regitherm is set.

The piping system comprises four separate circulators of wrought iron with screwed joints, supplying radiators and arranged for the two-pipe rising method of distribution. It is so erected that all the water is freely circulated and returns to the boilers by gravity alone.

Hot and Cold Water Supply.

There are two separate systems of hot water supply—to the servants' quarters and the front portion of the house respectively. Each boiler is capable of heating 120 gallons of water from 50 deg. F. to 120 deg. F. per hour. A storage cylinder of 100 gallons capacity is placed alongside. All the pipes are of solid drawn copper, tinned inside, and with gun-metal fittings. All joints are screwed and soldered and, where exposed, supported by neat polished gun-metal clips.

The two tanks in the roof space are of 1,600 and 1,000 gallons capacity, having two 1½-in. pipes connected to the underside of each for the supply of hot-water service boilers and cold-water fittings. All the pipes are of drawn lead with wiped joints and are arranged to empty themselves.

The whole electrical work was carried out by Messrs. Brash and Russell, Glasgow; the hot-water heating and supply systems by Messrs. James Boyd and Sons, Paisley; and the cold-water tanks and supply piping by Messrs. G. and T. Crampton, who were general contractors for the building. The electrical, heating, and water supply work was carried out to the specification, and under the supervision of, Messrs. James E. Sayers and Caldwell, of Glasgow.

New Library, Stockport.

A new library has been opened at Stockport, Mr. Andrew Carnegie having contributed £15,000 towards its cost.

PROJECTED NEW WORKS

Chapel, Sandford, Romsey.

A site for a new Primitive Methodist chapel has been secured at Sandford Romsey.

Academy, Perth.

It has been decided by the Perth School Board to erect a new academy at Rose Terrace, Perth.

Alterations, School of Art, York.

York City Corporation are considering the suggested structural alteration of the School of Art.

Town Hall Extension, Sunderland.

Sunderland Town Council have appointed a sub-committee to enquire into the proposed extension of the town hall.

Council House Extension, Birmingham.

Birmingham City Council is making application for sanction to borrow £66,000 for the completion of the Council House Extension.

Smallpox Hospital, Odsal.

A Local Government Board enquiry has been held at Bradford into the proposal of the Corporation to borrow £3,600 for the erection of a smallpox hospital.

School, Prestwick.

A new school is to be erected at Prestwick for the accommodation of 570 pupils. It is estimated to cost over £6,000. The architect is Mr. William Cowie, of Ayr.

Public Baths, etc., Sheffield.

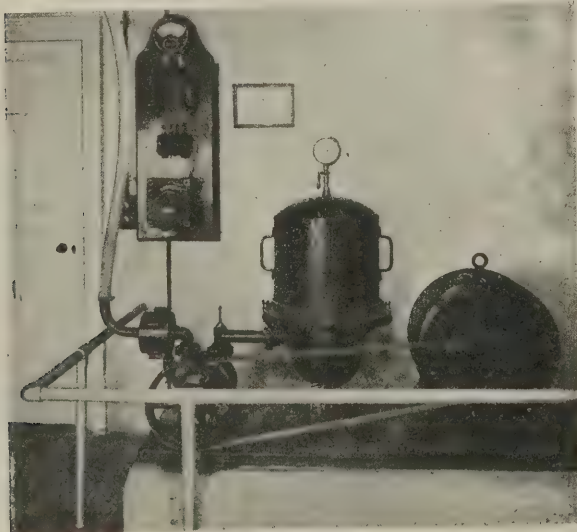
Schemes for road improvements and for the erection of public baths, involving an outlay of £29,793, have been the subject of a Local Government Board enquiry at Sheffield.

Mansion, Bridge of Weir.

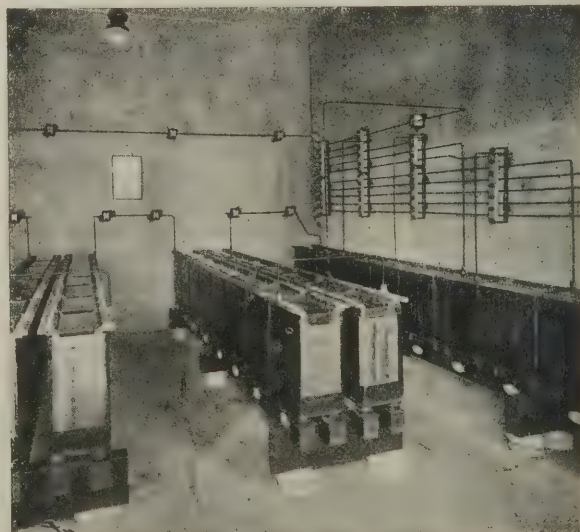
A new mansion is to be erected at Clevens Road, Bridge of Weir, for Mr. Wylie, at a cost of £4,000. The architect is Mr. W. G. Rowan, F.R.I.B.A., I.A. of Glasgow.

Concert Hall, etc., Boscombe.

Sketch plans for a proposed concert room, on the shore end of the Boscombe Pier, to give seating accommodation for about 400 at a cost of £4,500, and plans for the widening of the landing stage at an estimated cost of about £7,500, have been approved by Bournemouth Corporation.



VACUUM PLANT.



BATTERY ROOM.

(See page 471.)

Housing Scheme, Glasgow.

Glasgow Town Council have decided to proceed with the erection at Kennyhill, Niddrie, of eight three-storey tenements of two-apartment dwellings.

Houses, Shipley.

The Local Government Board have sanctioned the Shipley Urban Council's application to borrow a sum of money for the erection of twenty-one working-class houses at Dockfield.

School, Mansfield Woodhouse.

Notts County Council have notified the Mansfield Woodhouse U.D.C. that they propose to provide a new public elementary school in the district to accommodate about 500 children.

Housing Scheme, Carlow, Ireland.

Carlow Rural District Council have adopted a housing scheme, under which it is proposed to provide 255 new cottages, with allotments attached thereto. The total estimated cost is £40,891.

Baths and Washhouses, Northampton.

A modified scheme for district baths and washhouses to be erected on a site in Bath Street has been approved by the Council, and the borough engineer has been instructed to prepare plans.

Council Offices, Altrincham.

At Sale, Cheshire, a Local Government Board enquiry has been held into the application of the Sale Council to borrow £10,700 for the erection of public offices, fire station, parish room, etc.

Plans, Royton, Oldham.

Plans have been passed by Royton District Council for a motor garage and house and shop, Oldham Road, for Mr. John H. Wilson, and for a picture palace, Whitaker Street, for Mr. W. Openshaw.

London.

The London County Council have consented to the erection of the following works: A building upon a site abutting upon Highbury Crescent and Holloway Road, Islington, on the application of Temperance Billiard Halls, Limited. An addition at 36, Crouch Hill, Islington, next to Japan Crescent, on the application of Messrs. A. Sprosson and Co., on behalf of Mr. C. E. Roberts. A bay window at 4, Hyde Park Square, W., on the application of Messrs. Romaine-Walker and Jenkins, on behalf of Mr. F. Chapman. An iron and glass shelter at the Richelieu Hotel, Oxford Street, W., on the application of Messrs. Hukins and Mayell, on behalf of the proprietors of the Richelieu Hotel. A porch at 6, St. James's Square, S.W., on the application of Mr. A. Blomfield. Porches to fourteen houses on the northern side of Broadwater Road, Tooting, on the application of Messrs. Stevens and Gregson. A building on the eastern side of Hungerford Street, Commercial Road East, on the application of Messrs. Lovegrove and Papworth, on behalf of the County Chemical Company. Formation or laying out of two new streets for carriage traffic, one to lead from Denmark Hill to Ferndene Road, Norwood, and the other to lead from Denmark Hill to Herne Hill Road, on the application of Messrs. R. E. Ellis and Son, on behalf of Mr. R. A. Sanders, M.P. Blocks of dwelling houses, to be inhabited by persons of the working class, upon a site on the southern side of Warner Road, Camberwell, on the application of Messrs. Joseph and Smithem.

SPECIAL LEGAL REPORTS.

Builder's Claim for Work Done : Counterclaim for Alleged Delay.*Holbrook v. Isaac.*

November 12. Official Referee's Court. Before Mr. Muir Mackenzie.

This was an action by Mr. A. E. Holbrook, of Lynton, Notts, against Mr. Bernard Isaac, of Ovington Gardens, London, to recover the sum of £260 for work done and material supplied at Denmere Villa, Farndon, Cheshire.

Mr. Maddocks appeared for plaintiff and Mr. Latter represented the defendant.

Mr. Maddocks stated that plaintiff claimed the sum of £260, being the amount due to him for work done. In November, 1912, defendant acquired from the plaintiff some fourteen acres of land at Farndon, on which was erected a bungalow—a wooden structure built on a brick foundation some 2 ft. 6 in. above the ground. The defendant thought it would improve the property, said counsel, if he had a brick wall carried up outside the existing wall as far as the chamber windows. Accordingly he got into communication with the plaintiff, with the result that the contract under which the action was brought was entered into. The plaintiff carried out the work in a proper and workmanlike manner, and he now claimed £260 from defendant.

Defendant, it appeared, raised certain allegations of defective work and presented a counterclaim for damages, alleging that the work was not completed at the period specified.

It appeared that the defendant had certain fishing rights on the river Dee in the locality, and in consequence, he alleged, of the house not being ready for his occupation, he was put to considerable expense in seeking accommodation elsewhere.

Mr. Maddocks said his client's answer to the defendant was that the claim he now put in was for work done substantially in accordance with the contract, and, further, that his client was ready and willing at all times to remedy any defect which might show itself. It was a wooden house or bungalow, and defendant could not expect to have a wooden house of this description made into an ordinary brick-built house.

Mr. A. E. Holbrook, the plaintiff, gave evidence in support of his case, and evidence was also given by witnesses on his behalf to show that the work was properly done and in accordance with the contract.

Mr. Latter, for the defendant, said the plaintiff agreed to finish the house by March 1, 1913, and in consequence of his not having done so the defendant was unable to exercise his fishing rights in the Dee. The counterclaim was in respect of accommodation for defendant and his family at £40 a month for three months.

Evidence was given on behalf of defendant in support of his counterclaim by himself and other witnesses.

At the conclusion of the evidence and counsel's legal arguments, the official referee reserved his judgment.

The Right to Erect or Reconstruct Premises without Plans.*Bolton Borough Surveyor's Appeal.*

November 14. King's Bench Division. Before Justices Darling, Avory, and Atkin.

This was an appeal affecting the right of owners of property to erect or reconstruct premises without plans, and was raised in the case of Morgan v. Kenyon and Another, which was an appeal by the Borough Surveyor of Bolton against a decision of the Bolton magistrates.

Mr. Gordon Hewart, K.C., M.P., appeared for the appellant, and stated that the respondents were the owners of certain property in Bolton who had been summoned for proceeding to reconstruct the same without depositing plans or giving the necessary notice of intention to reconstruct in accordance with the by-laws regulating buildings. The justices seemed to have misdirected themselves upon one point. The premises in question had been the subject of a closing order, because as dwelling-houses they were not fit for human habitation. The justices seemed to think that the closing order took away the character of dwelling-houses from the premises. The respondents having received the closing order then proceeded to let the premises for warehouse purposes, and they were so used for 2½ years. In April last year respondents began structural alterations on a considerable scale to convert them into large warehouses. The magistrates found as a fact that this building had become warehouses, but that could not be a finding of fact at all, for they were really dwelling-houses, and, if dwelling-houses, it was conceded that the alterations ought not to have been commenced without complying with the by-laws. If the respondents' contention was right, then an owner would only have to create a hiatus such as here—some 2½ years—and he would subsequently be in a position to do as he liked without the slightest notice to or supervision from the authorities.

Mr. Justice Darling: Somebody might use the place as a warehouse?

Mr. Hewart: Oh, yes.

Mr. Justice Darling: You maintain it must be a dwelling-house for all time?

Mr. Hewart: I say it is a dwelling-house, and that it has been used and can be used as a dwelling-house.

Mr. Acton, for respondents, said his friend claimed, once a dwelling-house always a dwelling-house, but he submitted that this could not be so, having regard to the general facts. These premises had been warehouses for over two years, and had been used as rag stores. It was never intended that they should be used as dwelling-houses, and in these circumstances the magistrates were right in finding they were warehouses and therefore not liable to the by-law.

The Court allowed the appeal by a majority, Mr. Justice Darling dissenting from his brothers on the ground that the houses had ceased to be dwelling-houses.

Mr. Justice Avory said he thought houses of a class such as dwelling-houses were not intended by the Legislature to be allowed to be dealt with subsequently without notice, even though for a time they might have been otherwise used.

The appeal was allowed, with costs, and the case sent back to the magistrates to reconsider.

Liability of Principal Contractor to Sub-contractor.

The important case of Ramsden and Carr v. J. Chessum and Sons, which was decided in the House of Lords on November 10th, and determines that a principal contractor is liable to a sub-contractor for goods ordered by an architect, is dealt with in an editorial note on p. 459.

Foundations of an Ancient City Church.

The City authorities are watching the excavations on a site in Newgate Street in the hope that the foundations of the Church of St. Ewine, which was demolished in 1546, may be discovered.

COMPETITIONS.

New Public Art Gallery and Museum, Belfast.

The following particulars are taken from the conditions of competition for the above building. Designs are invited for the erection of a building at a cost not exceeding £75,000. The assessor is Mr. John J. Burnet, LL.D., A.R.S.A.

The author of the selected design will be appointed architect at the usual rate of commission. Authors of designs placed second, third, and fourth will receive premiums of £100, £75, and £50 respectively. In the event of the Corporation not proceeding with the work within twelve months of the award, the selected architect will receive a sum of 400 guineas, to merge into his commission if and when the first section is carried out. If the work be abandoned altogether the selected architect will be paid the further sum of 200 guineas, making a total premium on entire competition of 600 guineas.

Drawings required: (1) General plan of the building, 1-16 in. scale, (2) plans of all floors, two elevations, and two sections, $\frac{1}{8}$ in. scale, (3) perspective view. Report, giving complete cubical contents of the whole erection, stating materials to be used, and describing system of ventilation to accompany the drawings; the report to be accompanied by a copy of the dimensions and an estimate of probable cost per cubic foot.

Accommodation required, with approximate area of rooms in square feet:—

BASEMENT.

Goods receiving and unpacking room, 1,500; workshops for museum staff, 1,200; fumigating chamber, 240; photographic gallery with dark-room, 600; strong-room, 280; reserve and students' collections in arts, antiquities, natural history, and research students' room, say, 12,000; refreshment rooms, kitchen, etc., 1,000.

GROUND FLOOR.

Curator's office, 280; strong-room off curator's office, 98; staff office, 280; typists' room, 106; hall (statuary), 1,974; museum library, 350; lecture theatre, 1,440; zoology—vertebrates, 1,120; zoology—vertebrates, 1,960; geology and mineralogy, 1,960; botany—plant models, etc., 980; children's room—exhibits for juveniles, 980; ethnographical gallery, 1,960; Egyptian and Peruvian antiquities, 980; Irish antiquities and ethnology, 1,960; Belfast room (past and present Belfast), 1,512; spinning wheels and hand looms, 1,512; textiles and embroideries, 980; metal work and woodwork, 1,960; pottery, glass, and enamels, 980.

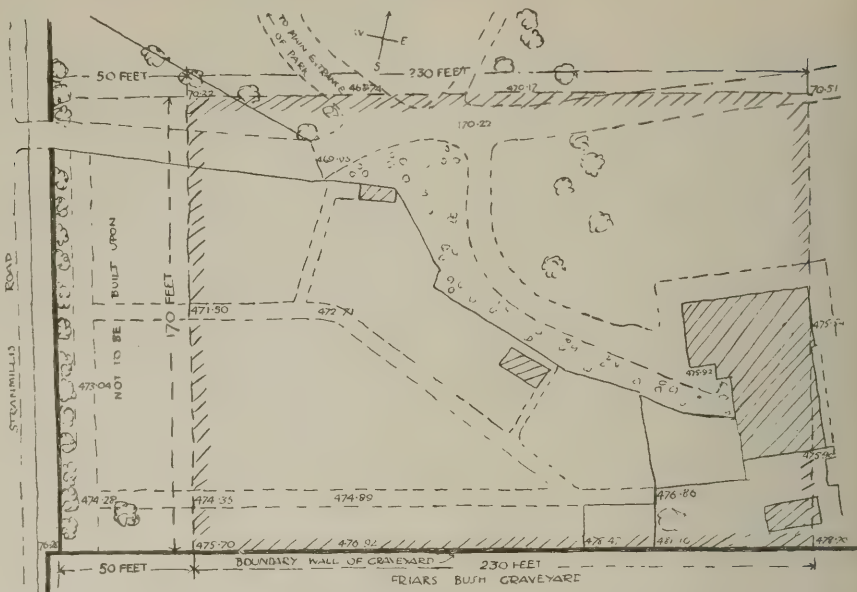
FIRST FLOOR.

British oil paintings, 1,972; French oil paintings, 1,600; British water-colours, 1,600; French water-colours, 1,600; Patterson collection of paintings, 1,600; old masters (paintings), 1,600; local artists (paintings), 1,600; sculpture (Greek), 1,700; prints gallery, 1,120; loans galleries, 2,482; students' copying room, 800.

Questions relating to conditions to be addressed, not later than November 22nd, to Town Clerk, Belfast. The competition closes on Friday, March 20th, 1914.

Pleasure Grounds, etc., St. Anne's-on-Sea.

St. Anne's-on-Sea Urban District Council have instituted competitions for (1) Laying out St. George's Gardens as ornamental pleasure and recreation grounds and the provision therein of a pavilion, open-air bandstand, etc., and (2) laying out the beach and foreshore, providing for



PUBLIC ART GALLERY AND MUSEUM COMPETITION, BELFAST: SITE PLAN.

open-air sea-water baths and marine lake, etc. Names of landscape gardeners and others willing to compete (from which a limited number will be selected) should be sent by November 22nd. Premiums of £50 and £25 are offered in each competition.

Technical Institute, Coventry.

Members of the Society of Architects are advised that the conditions of the above competition are, in certain respects, at present unsatisfactory, and that efforts are being made to get them amended.

Municipal Offices, Shipley.

The Shipley Urban District Council invite architects residing or having offices in any part of Yorkshire to submit competitive designs for new municipal offices. A plan of the site and printed conditions of the competition may be had on application to Mr. J. Lindon, Clerk, Council Offices, Shipley.

Elementary Schools, Chelmsford.

The Borough of Chelmsford Education Authority invite competitive designs, from experienced architects practising in the county of Essex, for two new elementary schools. Those willing to compete should send their names, not later than November 24th, to Mr. George Melvin, Town Clerk, Municipal Offices, 16, London Road, Chelmsford.

Day Training College and Hostel, Sunderland.

The award of the assessor (Mr. Percy S. Worthington, F.R.I.B.A.) in this competition was announced at last week's meeting of the Sunderland Town Council. Mr. Worthington said he had carefully considered eleven sets of drawings submitted by local architects. Every competitor estimated the cost of his scheme as coming within the sum of £21,000 allowed for the two buildings. He could not share that optimism; indeed, he thought it doubtful whether any design that could be seriously considered as worthy of selection could be carried out for that sum. He had come to the conclusion that design No. 5 was the best, and he awarded it the first place. On opening the envelope containing the name of the designer, it proved to be Mr. G. T. Brown, of Sunderland. After some discussion it was decided to accept the award of the assessor, and Mr. G. T. Brown was appointed architect for the buildings.

SOCIETIES AND INSTITUTIONS.

ROYAL TECHNICAL COLLEGE ARCHITECTURAL CRAFTSMEN'S SOCIETY, GLASGOW.

Shoring and Underpinning.

The fourth meeting of the session in connection with the above society was held on Friday, November 7th, Mr. T. G. Gilmour, A.R.I.B.A., in the chair. Mr. D. S. Pringle read a paper on "Needle Shoring." He said that the first precaution to be taken was thoroughly to examine a building before beginning operations, and if there were any cracks to fill them up with stucco, so that should there be any settlement during the progress of the work it would at once be seen. Mr. Pringle described the various methods of shoring and the purposes of each. Afterwards Mr. Robert T. Anderson read a paper on "Underpinning," and explained that sometimes foundations were required deep down, either because a basement was wanted or because of the erection of an adjoining building on a lower level. The necessary underpinning was carried out in sections about 3 ft. long, beginning at each end and leaving out alternate sections, which were filled in afterwards. Care should be taken to keep the courses of brickwork on the same level and to see that the wedging up under the old foundation was carefully done.

THE SOCIETY OF ARCHITECTS.

Presidential Address.

We regret that, in consequence of pressure on our space, we are unable to include Mr. Percy B. Tubb's presidential address in this issue. We hope, however, to publish the substance of it next week.

A New Grade in Copal Oak Varnish.

A new "Omnilac" copal oak varnish has recently been introduced by Messrs Robert Ingham Clark and Co., Ltd., of Caxton House, Westminster. Its wearing properties have been thoroughly tested both for interior and exterior work, and the results have given complete satisfaction. The very moderate price at which this varnish is offered to the trade, namely 9s. per gallon, should ensure an extensive demand.

THE ARCHITECTS' & BUILDERS' JOURNAL.

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No. 60.



(From Piranesi.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

NOVEMBER 26 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 38. No. 985.

Street Signs and Advertisements.

THE finest street architecture in the world is wasted if there be no control over signs and advertisements. In spite of that, however, it would be worse than useless to adopt a very censorious attitude towards them. As they are exceedingly complex in their social origin and purpose, serving not only the needs of commerce, but the convenience of the public, they should be the subject of delicate adjustment rather than of legislation framed in a harsh spirit. For instance, it would be absurd to make the same rules for all thoroughfares, broad and narrow, formal and informal, metropolitan and suburban. We ought, rather, to permit the greatest amount of licence that is consistent with a certain minimum standard of æsthetic propriety; but it is not too much to ask that this minimum standard should be enforced by local authorities. Regulations clearly defined and logically adapted to varying circumstances, even if they constitute a somewhat elaborate code, are easier to administer than one crude enactment which, on account of its very simplicity, becomes a source of vexation to everybody. The by-law which relates to the width of roads, so mischievous because of its neglect to take into account their different types and purposes, is an example to be avoided.

Signs and advertisements may be divided into two classes—those that are necessary to the public, such as the names of shops, offices, and places of amusement, and those that are gratuitously thrust upon its notice—descriptions of the various brands of whiskey, soap, and other merchandise. Obviously, the first kind is worthy of greater consideration than the second.

It would be a good rule if shopkeepers were forbidden to flaunt their names above the first-floor level. To spread huge gilt letters over the upper part of a façade is to destroy whatever artistic merit it may have possessed; besides this, the view of a street is most pleasing when the temporary and movable element, namely, signboards and letters, are confined to the lower part, so that there remains something solid, permanent, and architectural upon which the eye may rest. It may be contended that a shopkeeper would lose customers if compelled to observe this self-denying ordinance; and so he undoubtedly would if it were imposed upon him alone; but if all his neighbours were similarly treated there could be no injustice. It is a question of moderating the key all round, and the relative obtrusiveness of the shops need not be altered at all. As a rule, a façade belongs to a single proprietor, but in cases where the upper rooms are sublet for offices it should be sufficient for the owners of these to have their names displayed behind the windows, as is frequently done, or else to have black printed letters in the glass itself. This is infinitely preferable to the practice of putting large placards on the second, third, and fourth storeys of a building.

As for signs at right angles to the plane of a wall, such as clocks, flags, barbers' poles, pawnbrokers' emblems, and similar devices, they have their legitimate place, and nobody could wish to abolish them

entirely; but they might well be restricted to the more informal parts of a city, and it may be added that they appear to better advantage in a narrow thoroughfare than in a broad one; for when there is room to step back and have a proper front view of a building it is wrong to introduce appurtenances which are only fit to be seen from the side. On the other hand, the little village lane at Clovelly, so beloved by painters, is given an additional interest by the conspicuous sign-board of the hotel at the top of the hill; in the typical Chinese town the silk streamers bearing the trade-marks of merchants are an element of charm; and the beauty of Bond Street is enhanced by the coloured flags displayed from the various art galleries. In fact a narrow street of no great architectural pretensions, and without a culminating point, such as a tower or dome, is much improved by having features which partially interrupt the view and form pleasant halting-places for the eye. But where there is a formal treatment providing a vista towards a terminal building the spectator would only be irritated if a series of objects were allowed to act like screens and to obstruct his vision of the most important thing in front of him.

A kind of advertisement which has become very common is the illuminated sign, and it calls for strict censorship. A particularly offensive type, and one that ought to be suppressed as soon as possible, consists in the flashing of names on to the pavement; to walk over brilliant letters is most unpleasant. There the custom of forming words out of a large number of electric-light globes is apt to destroy the dignity of evening. The glare of lamps and shop-fronts is productive of a certain beauty; when the traffic and the pavements are lit up and the outline of dark buildings is visible against a sombre sky, architectural values are maintained; but when a gigantic name shines through the dusk, everything else in the view is subordinated to it. Every night the Thames Embankment and its environs are disfigured by this means, and it is an outrage that city and river are thus bereft of the grandeur that properly belongs to them.

Hoardings do not present a very great difficulty: in the immediate neighbourhood of a building of historical interest or of national importance it might be well to keep them bare, but in most positions a series of posters truly decorative in character and adequately framed cannot be objectionable. Some of the worst examples of the bad arrangement of advertisements can be seen in railway-stations, and it is to be hoped that the day will come when the designers of these will set aside definite positions for all pictures and notices, so that we shall avoid the painful jumble that results at present.

The French, above all other people, are competent to give us instruction in these particular matters, for they know well how to protect their buildings from desecration. Two placards eighteen inches wide placed just outside the Opera House are considered sufficient to inform the Parisians of the entertainment that takes place within; the pillars for posters

in the streets are themselves things of beauty, while their pictorial advertisements, considered as works of art, are vastly superior to our own.

It remains for us, however, to protest as effectively as we can against the disfigurement of our streets. Perhaps when the Ministry of Fine Arts is established it will help us out of our difficulties. A. T. E.

A Substituted Site.

THAT change of site does not necessarily constitute a breach of contract is the principal effect of the judgment (summarised in our Special Legal Reports) delivered by the Official Referee in the case of *Gough v. The Bournemouth Corporation*. Plaintiff had tendered for the work of building some schools in the Sherborne Road, Winton, and went into possession of the site. It was then found that this particular site could not be used, and another was obtained about a thousand yards further from the station, and having the further disadvantage that it was on clay instead of the valuable gravel of the original site, so that a sleeper-way for the carting had to be constructed. To this new site the Corporation very considerably moved the builders' plant. It is quite clear from the evidence that this change of site from that upon which the builder had tendered for the erection of the school placed him at a serious disadvantage, and he declined to entertain the suggestion of taking £1,000 in compensation. Accordingly, the case went into court, with the result that on this particular issue (there are some minor points which are of no particular public importance) the Official Referee decided against the builder (who, he admitted, had suffered hardship), on the ground that it was impossible "to go behind the sealed contract." Certainly it seems hard that a builder who has tendered on the conditions represented by one site should be saddled with the consequences of transference to another; but any further comment on a case that obviously may see fuller developments would be improper; although it may be permissible to remark that the issue, so far as that has been determined, points to the necessity for the insertion in contracts of a clause definitely fixing the site upon which the work is to be done and stating explicitly that a new site would require a new contract. Certainly the contingency is rare, but the case under notice demonstrates the possibility of its occurrence in a very expensive form, and therefore the desirability of promptly removing it from the plethoric catalogue of builders' worries.

"Speeding Up" and the Increase in Accidents.

IT is stated in the daily Press that the London building-trade workers are on the point of revolt against the increasing number of accidents on buildings. They complain of contractors "being so keen on earning their bonus for getting work finished under schedule time that they offer their workmen extra pay for fast work, with the result that some poor fellow breaks his neck on every big job." This is obviously a rhetorical exaggeration of the consequences, as well as a misstatement of the cause. Certainly accidents, fatal and otherwise, have lately grown more frequent, but they do not occur on almost every big job; and we can obtain no verification of the statement that extra pay is offered for fast work. It is more probable that the existence of the Workmen's Compensation Act has made both employers and employed rather more careless than they were before the one found it necessary to indemnify himself by insurance, and the other received the comforting assurance of compensation. This is not to accuse either of deliberate carelessness. As a rule, no employer is such a monster of inhumanity as to be indifferent to the lives and limbs of his fellow-creatures; and no workman is such a fool as to risk his life or his bodily welfare for the sake of pecuniary gain to his relatives or to himself. But that obscure

influence which has lately been noted and labelled as "sub-conscious" or "sub-liminary cerebration" is probably not without its effect in a certain degree of relaxation of vigilance with regard to the prevention of accident. "Speeding up," too, as the dominant note of the day, is naturally reflected in building operations, whether or not it is true that these are governed by rival "pacers," some bribed by employers to make the pace hot, and others instructed by trade unions to slacken it.

A Faculty Refused.

THE Chancellor of a Consistory Court who can say no to an application for a faculty has been found at Carlisle. Application was made by the vicar and churchwardens of Hawkshead for a faculty to take down part of the north wall of the church, with the object of enlarging the Sandys Chapel, which is too small to receive a memorial of the late Colonel Sandys which his relatives desire to place in it. More than seventy parishioners opposed the application, on the ground that such an addition to the chapel would disfigure the ancient church and destroy much of its architectural and archaeological value and interest. The Chancellor, in declining to grant the faculty, seemed quite nervous about basing his refusal on architectural grounds; for, although he had not the slightest hesitation in saying that the annexe would be, in the eyes of a few, "a grievous interference with the architecture of an ancient church," he seemed to doubt whether the argument from architecture alone would carry sufficient weight, for he was careful to add that no portion of a burial-ground, used or unused, should be covered with buildings except for an enlargement of the church. That is all very well as a general proposition, but it seemed to have but little relevancy to the present case, seeing that what was proposed was an extension of the church.

Monuments in St. Paul's.

IT was announced last week that the Dean and Chapter of St. Paul's Cathedral wish it to be known that no further memorials of the dead can be placed on the main floor of the cathedral without, in their opinion, encroaching upon the space which should be reserved for worshippers, or impairing the architectural beauty of the interior. They are therefore obliged to request that proposals for statues or monuments on the floor of the cathedral may not be submitted to them. They state, however, that this prohibition does not extend to the crypt, which runs the full length and breadth of the building, but which is not sufficiently lofty to afford fit housing to monumental statuary. Burials in the cathedral will still go on, which is a pity, unless, as Canon Simpson has remarked, cremation becomes general; for the barbarism of burying bodies within a building is from every point of view revolting, and, indeed, is a serious menace to the public health. It should be stopped at once and for ever, and an announcement to this effect would have been even more welcome than that with respect to monuments. As to these, it is unfortunate that prohibition comes at the exact moment when sculptors are atoning for the sins of their predecessors. If some of the monstrosities in marble which, representing some of the worst periods of the art, absolutely disfigure the cathedral could be cleared out to make room for really meritorious examples, the problem of accommodation would be solved very satisfactorily, always supposing that the design and the positions allotted were subject to strict architectural supervision. That condition would be less difficult of fulfilment now than it would have been in the day when sculpture and architecture had become estranged, and the sculptor was apt to presume upon the eminence which was due less to his own skill than to the bad taste of his times.

THE PLATES.

House in the Avenue du Bois de Boulogne, Paris.

THE house in the Avenue du Bois de Boulogne, the façade of which we illustrate, is a very typical example of current work in Paris. There is a vivacity about the embellishment of the bays, with their carving and ironwork, which makes the whole composition a very pleasing one. The little iron balconies are particularly graceful in design. The ground-floor storey is treated, as it should be, in a stronger manner than the upper portion of the façade; in this way the building is given an appearance of solidity. The proportion of voids to solids is skilfully managed, and the window frames, while conforming with their sunblinds to every modern need, have received architectural consideration from the start, and take their place admirably in the scheme.

Coombe Hill Golf Club-House.

This golf club-house has recently been erected at Kingston Hill from the designs of Messrs. Harold Bailey and Douglas Wood, F. and A.R.I.B.A. The golf course is one of the finest near London, and magnificent views are obtained from the club-house towards Wimbledon Common and Roehampton. Crowborough brindle-coloured bricks were used for the chimneys and plinth, the walls being rough-cast. Red hand-made roofing tiles cover the roof, the gables being tile-hung. The cost of the club-house was £3,000. Messrs. Limpus and Son, of Kingston Hill, were the builders.

Sprowston Court, Norwich.

Sprowston Court, built on Georgian lines, follows the traditions of Norfolk, the roof being covered with pantiles. In this case these are of a grey tone. The brickwork is varied in colour and texture, with brighter red dressings around the windows, and a certain distinction is given by the pleasing proportion and spacing of the latter. The north side of the house backs on to a wood, while to the south the view is open. The gardens have been laid out in keeping with the house. Mr. Oswald P. Milne, F.R.I.B.A., was the architect.

Shop-Front, No. 104, Grafton Street, Dublin.

This is a very good example of a modern shop front devoted to the business of a bookseller. It will be seen that the windows have been divided up by shelves in order that books may be shown on them, both open and shut. The glazing above is intended to afford a good light within the shop. The work is executed in Austrian oak. The opening is neatly framed in by the pilasters, and it will be noticed that the lettering on the fascia is well designed, in which respect it merits attention. Messrs. O'Callaghan and Webb, F.F.R.I.A.I., of Dublin, were the architects, and Messrs. J. and P. Good, Ltd., of Dublin, the contractors.

The Campo Santo, Genoa.

Cemeteries as a rule—at least in England—are not places where one is accustomed to find good architecture; though this should not be the case, in view of the fact that monuments and cemetery buildings offer plenty of scope for solemn and impressive design. In the Campo Santo at Genoa this is admirably shown, the whole scheme being carried out in a monumental manner and treated with great dignity. The cemetery was laid out in 1844-51 to the design of Resasco. It stretches along the slope of the north bank of the Bisagno. One first enters a large rectangular space with single monuments in the recesses of the arcades. Beyond this is an oval space, with further rows of monuments in recesses. Flights of steps and broad inclined planes lead up to the galleries at the higher level, the central point of interest being the circular chapel, which is shown in the photograph which we reproduce (taken with a Kodak). The whole forms a delightful composition.

Neo-Grec Detail.

The detail from the Palais de Justice, Paris, which we illustrate this week shows to a large scale the pilaster capital and entablature on the end wall of the Vestibule de Harlay, a general view of which, with the doorway, was given last week.

Quasi-south Transept, Liverpool Cathedral.

We illustrate in this issue a working drawing of the interior of one of the two south transepts, situated at the south-east angle of the central tower of Liverpool Cathedral. A drawing of the exterior of the same transept will be given in a subsequent issue. One side of the transept forms the abutment for the large arch across the central space supporting the central tower. The arrangement of twin transepts, both on the north and south sides of the cathedral, allows on two sides to the central tower being carried down to the ground, and avoids the necessity of piercing all four sides with arches—a source of considerable weakness in most central towers, where the usual position of the transept is adopted. The two transepts are connected by an arch of 60 ft. span, forming a large central porch with a flight of steps down to St James's Road, which is some 16 ft. below the nave floor level.

* * As in future the illustrations in this journal, in the majority of cases, will be from photographs of buildings, the Editors invite architects to submit photographs of their recent work. When the illustrations are given as full-page plates twenty-five copies on art paper will be sent to the authors. Architects will realise that many conditions, which may not occur to them, cover the selection of illustrations for a technical journal, and that when photographs are not used it does not necessarily imply that the work is not worthy of publication: it may happen that at the moment the illustrations do not fit in with the general scheme.

THE MODERN QUESTION OF STYLE

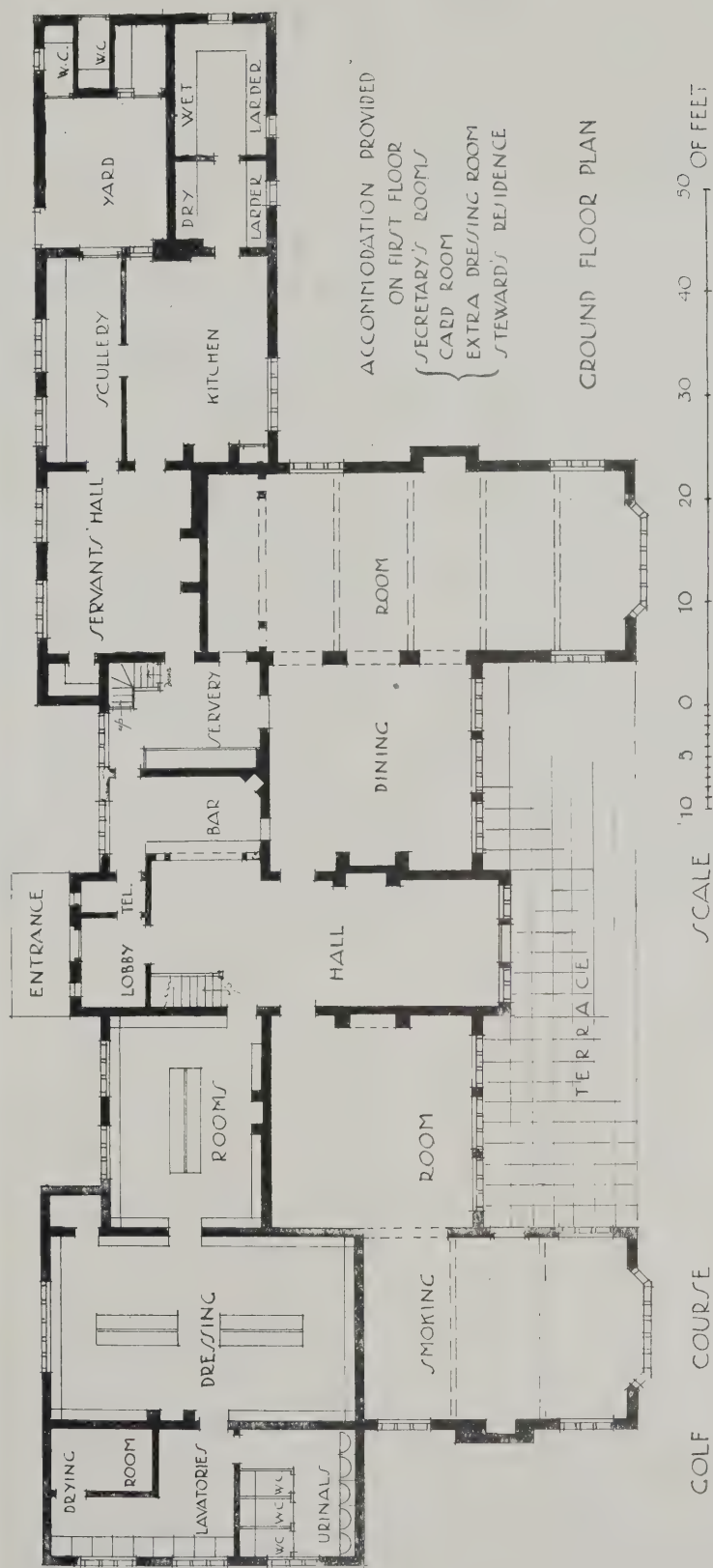
IN the course of an interesting article on "Nonconformist Architecture" in the "Inquirer," Mr. Ronald P. Jones deals with the question of style in church architecture.

First and foremost, he says, let it be noted that the whole question of a "style of architecture" specially appropriate to churches, or indeed to any other kind of building, is peculiar to the last hundred years; before that time it had never been raised, and if raised would have conveyed no meaning. If you had asked the builder of Salisbury or Rheims Cathedral what style of Gothic he was using, you would have appeared incomprehensible to him, just as you would have seemed to Julius Cæsar if you had asked him what he was doing in "B.C. 50." The whole idea of styles belongs to critical and not to creative epochs; and even in exceptional cases like the Italian Renaissance which was both creative and critical, the revival and adaptation of past forms was imposed on the present as the only reasonable and sound method available, not simply as an alternative, depending on individual choice and taste. The cathedral builder, of course, realised that he did not use the same treatment as his predecessor; but this he would have put down to ignorance on the part of his predecessor, and he never doubted his own superiority in taste and skill, as we see by the ruthless way in which he destroyed existing work to make way for his own enlargements and improvements. A clockmaker would be puzzled if asked for a clock that kept ecclesiastical time, or municipal time, or domestic time; he would say that all his clocks were designed to tell "the time" simply: in the same way the mediæval or Renaissance builder would have asserted that he was producing "architecture," pure and simple, and that he knew only one kind for all purposes.



CURRENT ARCHITECTURE. XVIII.—DETAIL OF RESIDENCE IN THE AVENUE DU BOIS DE BOULOGNE, PARIS.

A. LAFON, ARCHITECT.

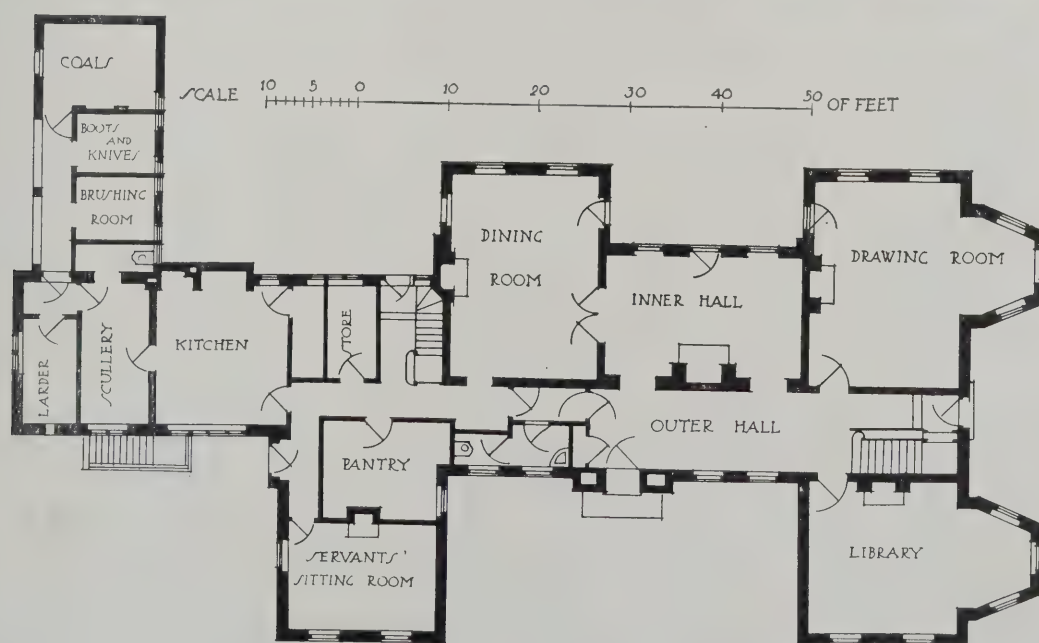


CURRENT ARCHITECTURE. XIX.—COOMBE HILL GOLF CLUB-HOUSE, KINGSTON HILL.

HAROLD BAILEY AND DOUGLAS WOOD, F. AND A.R.I.B.A., ARCHITECTS.



Entrance Front.



Ground-Floor Plan.

MODERN DOMESTIC ARCHITECTURE. IX.—SPROWSTON COURT, NORWICH.

OSWALD P. MILNE, F.R.I.B.A., ARCHITECT.



MODERN SHOP FRONTS. VIII.—No. 104, GRAFTON STREET, DUBLIN.

O'CALLAGHAN AND WEBB, F.F.R.I.A.I., ARCHITECTS.

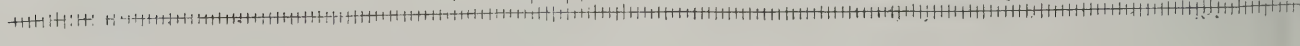
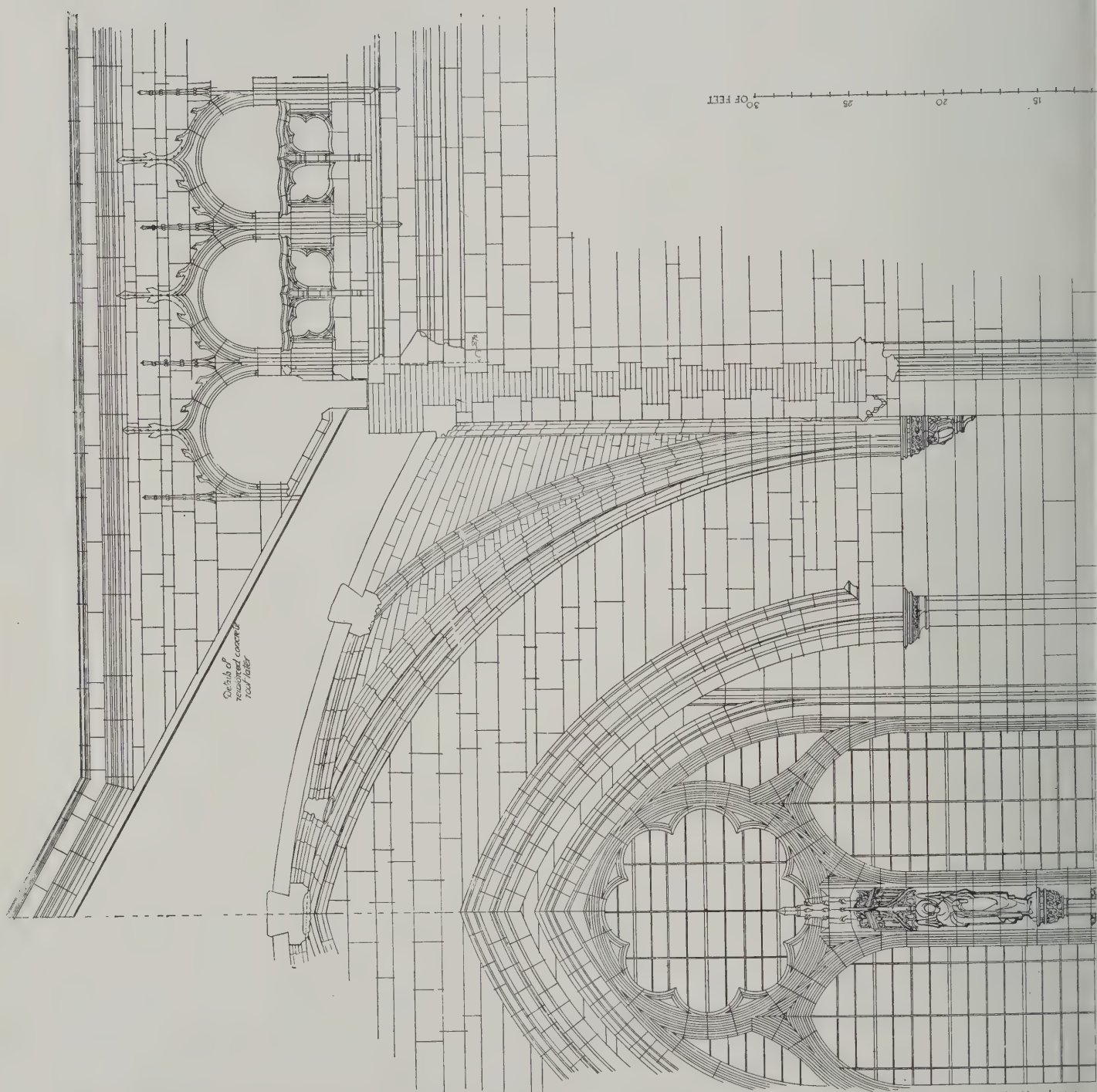


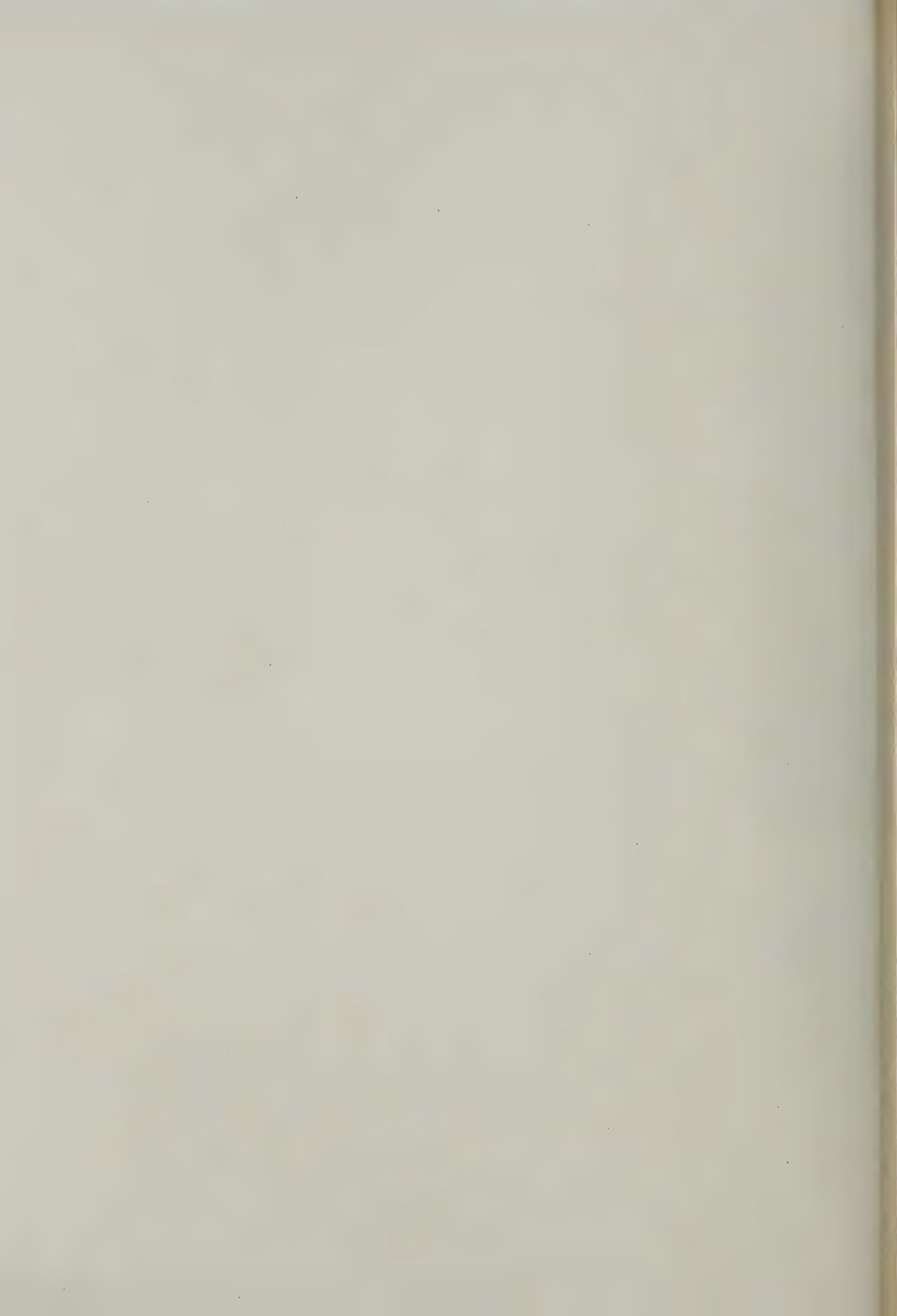
MONUMENTAL ARCHITECTURE. V.—THE CAMPO SANTO, GENOA.
RESASO, ARCHITECT.



NEO-GREC DETAIL. VIII.—DETAIL OF WALL TREATMENT, VESTIBULE DE HARLAY, PALAIS DE JUSTICE, PARIS.

J. L. DUC, ARCHITECT.





HERE AND THERE.

ARCHITECTS and craftsmen are fortunate in having some very accommodating terms to explain any resemblance that may be observable between their own work and the work of somebody else. If only there were a living tradition, undisputed and supreme, even an explanation would not for a moment be thought of, but tradition being a thing that belongs to the history books rather than to ourselves, we are forced to take refuge in "inspiration." With the old work no awkward questions are likely to arise, so that we can take the doorway from one of the manor-houses of Lancashire and "adapt" it to our new house in Oxfordshire without risk of accusation, but we must not purloin the design of a fellow-worker, because the theft will be too apparent, and the whole art of "inspiration" consists in not being found out. A writer sometimes finds himself in much the same position. Even Shakespeare made substantial use of his contemporaries, whilst with other gifted men there has been plagiarism in excelsis. Hence, in face of such high precedent, I am not going to be disturbed by taking some goodly portions from the work of two kindred spirits who have lately been putting some notions into print. Let me, then, derive a little "inspiration" from these two separate sources.

First comes Mr. E. W. Gregory, in the "World." He is concerned with this very subject I have outlined above, and almost at the outset we alight upon the aphorism that "On the whole, mankind has been content to plagiarise its way through the centuries, unconsciously setting the stamp of individuality upon platitudes by the employment of local accent." Thus "Chippendale made no bones about borrowing from the French, though to-day we talk of 'pure' Chippendale, just as we speak of the Empire style in description of a phase of decorative art which was an unblushing robbery of the Romans. . . ." Proceeding to deal with style in decoration, Mr. Gregory says (and I will plainly mark his words)—"For some years past our decorative desires have been satisfied by modern adaptations, and close copies of the various fashions of the eighteenth century. In the future we shall be regarded by historians as very clever copyists. Unlike the cabinetmakers of the days of Queen Anne, who put a bit of themselves into the ideas they obtained from Holland, we look upon all attempts to interfere with the details of accepted periods as so much impertinence. If we are to have a Jacobean interior, it must be so like some known original example as almost to deceive the very elect into thinking it a genuine product of Stuart times. Indeed, when we get the opportunity, we actually collect with great pains, and at great cost, original panelling, furniture, and ornamental details, and re-erect them so that Pepys himself, with his pertinacious little mind, would never know the difference. With all this, however, we make no sacrifices to comfort. While a Louis Quinze salon may satisfy our artistic souls in its opulence of ornament, we see to it that the heating and lighting of the room are modern, but carefully dressed up in fancy costume. We may have our ormolu appliques on the walls, and it pleases us that they shall look as though they supported wax candles; but, knowing a trick worth two of that, we put in the cunning wire instead of the wick and so get the best of both worlds. . . ."

How we are to explain away all this is difficult to say. Certainly in the space at my disposal I shall not attempt the task. The fact is, we live in an age whose real art is mechanical. Questions like these never arise over a super-Dreadnought or a monoplane or an express locomotive. And there are artists and even poets who would convince us that therein the real art of our own day is to be found. But that, too, opens up a

lengthy matter, so let us hasten to the second source of my "inspiration."

* * * * *

This I find in the journal of the Imperial Arts League: no indication of the author is given, so we must simply make acknowledgment to anonymity. The whole affair concerns a little architectural comedy put in the form of correspondence between A, an amateur in architecture; B, an architectural critic; and C, an architect—seemingly as if it were all imaginary, though I strongly suspect it has a basis in fact. The amateur writes to the critic saying that a friend has asked his advice with regard to an old farmhouse he has bought. It needs repair, and such additions and equipments as will make it a pleasant country home. Can the critic recommend someone—youngish and rather keen? The critic thinks C is the very man for the job. Accordingly, the architect and the amateur have a preliminary talk, and the latter subsequently writes to the critic telling him that his friend is sure to commission C to do the work. The next letter, however, from the amateur to the architect, discloses a cloven hoof. Things have taken an unexpected turn—so the amateur says. The friend has conceived "a great admiration for the way I restored this castle, and *begs* me to superintend the enlargement of his farmhouse. I was most unwilling to do this, but Sir John Dryasdust has been talking to him, and insists that no one without special local knowledge and archæological reputation shall be called in. I regret being deprived of the pleasure of seeing you do the work, but with such pressure I could not resist, and I am to act as architect. I think the results should be interesting. We have discussed the matter fully. The kitchen will be turned into a baronial hall with a large ingle-nook in red brick (left quite rough, you know). I am going to add a Georgian billiard-room, and my friend's wife insists on an Adam drawing-room. The sanitary arrangements will be a little troublesome, but Chipperbrick is very good at that sort of thing."

This, of course, is a familiar tale, and it is only natural that the architect, in a letter to the critic, should point out how Chipperbrick, the local builder, will chuckle at having an amateur to check his accounts! It will be worth another 20 per cent. to him. "Who will do the half-inch and full-size details of the new rooms? My imagination swims at the thought of young Bill Chipperbrick designing mouldings in the fifteenth-century manner! . . ."

At this news the critic writes sympathising with his young architect friend. "I am sorry for you," he says, "because you have lost a job: I am sorrier for the owner of the farmhouse, which will lose its character. But what a delightful flavour of the eighteenth century there is about it all. You remember the story of the house designed by that prince and prototype of amateurs Lord Burlington, of which it was said that the owner would be wise to 'take a house over against it and look at it, because he would not be able to live in it.' Perhaps the farmhouse won't be so bad, because after all Chipperbrick is a good workman, and I suppose A will go to Oxford Street for old panelling and a Jacobean umbrella stand. Still, it is rather pathetic. In place of a fine old farmhouse there will be a spiritless fake, a cause of mocking to every one who knows what honest architecture is. A will get 5 per cent. (which he doesn't need) on the excessive amount which Chipperbrick and Oxford Street will charge. You, who have spent weary years in acquiring a working knowledge of your art and practice, will get nothing. . . ."

At this point the curtain is rung down, and we all go away dejected.

UBIQUE.

CORRESPONDENCE.

Relative Value of Arch and Lintel.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—In reply to your correspondent Mr. W. A. Green (see issue for November 12th), I did not assume that the maximum compression on a uniformly loaded arch occurs at the crown, but merely for sake of simplicity adopted the stress at the crown for comparison, as the increase of stress at the abutments is only slight. For the same reason the stress of 600 lb. was retained in the second case, although it is undoubtedly too high, and the resulting difference in the two modes of construction should come out even greater than I stated.

HENRY ADAMS.

"Modern Architecture."

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—In your leading article of last week's issue "A. T. E." says:—"Obviously, one cannot help admiring the devotion displayed by the Gothic craftsman: it must be noted, however, that the most savage tribes and even animals are capable of perseverance and self-sacrifice, and it is the possession of intellect in addition to these qualities that makes one people more distinguished than another. Classic architecture is the embodiment of a method which is still of use to us, and thus it is ever youthful and vigorous, while Gothic is well-nigh extinct."

Surely there is plenty of intellect displayed in the constructional marvels of Gothic architecture; while the proportion and beauty of this style cannot be excelled. It may be well-nigh extinct, but that surely is not because it merely (as alleged) displays devotion. More likely it is because people have changed in their way of thinking, and it no longer appeals to them.

As to Classic architecture, that also can, of course, claim excellence of proportion and beauty, and, if not devotion, at any rate, some common sentiment. With regard to its present evergreen usefulness, I cannot but feel that some qualifications are necessary. As we know, the Classic architecture of the ancients was the religious style of their day; and in just the same way the Gothic architecture of the mediævals was the religious style of *their* day. Both styles were used also for civil and domestic purposes, and represented the national styles of their respective ages.

As to "modern" architecture, when we consider how things have changed since the times to which the above styles belong, it is difficult to see how either can be "youthful and vigorous" among conditions so utterly different (more especially with respect to the Classic style) from those which gave rise to them. The principles, naturally, are largely the same as those employed to-day (though reinforced concrete has revolutionised construction, and proportion has a breadth of meaning for us, unknown in those days), but they ought, logically, to be expressed in modern language, compiled from things around us now, just as Classic architecture reflects the things to which the ancients were daily accustomed.

The new ideas so lavishly bestowed on this present age, and the speed at which progress is moving, must find expression sooner or later in our architecture. A universal style will perhaps be the next one, emanating from a scientific rather than a religious source. Any way, we should be well advised to avoid pinning our faith to one style, even if centuries ago it was perfect in its way. We have left the Greeks far behind in the matter of music.

Of course, it is easy to reel off the orders, but now we always know just what to expect when a new building is designed. I am sure it would be better if we sought rather to add to our accumulated fund of architectural design from the *present*, instead of always drawing on the past. I do not mean by trying to break architecture, but by using what we already know and what we can gather for ourselves added thereto. This new style would have a stimulating effect, and would be neither Gothic nor even Classic, but really Modern in the true sense of the term.

PROGRESS.

Bridge Design.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Apropos of the leading note in your issue for November 5th, and of Mr. C. H. Hopwood's suggestion with respect to bridge design, may I say that the ideas of covered footways and a large central span supported by two towers also occurred to me when the proposal to build St. Paul's Bridge was under consideration?

In 1911 I was preparing drawings for my R.I.B.A. final examination, and the one that I send (reproduced below) embodies the various ideas mentioned.

E. DOUGLAS SELWAY, A.R.I.B.A.



DESIGN FOR A COVERED BRIDGE ACROSS THE THAMES. BY E. DOUGLAS SELWAY, A.R.I.B.A.

THE ADAPTATION OF CLASSIC.

HAVING ourselves been the first to controvert the position taken up by Mr. March Phillipps in his "Morning Post" articles—so damaging to the cause of architecture and its proper appreciation by the public—we were glad to give prominence to the very scholarly rejoinder which Mr. Reginald Blomfield delivered in the course of his recent presidential address at the Institute, and now, we notice, Mr. D. S. MacColl has joined in the fray, in an article on the new façade to Buckingham Palace which has appeared in the "Saturday Review." Mr. Phillipps opposed the whole idea of turning back to the "Classic tradition," and in one of his diatribes he assailed the principles of symmetry and proportion as applied by the Greeks and as applicable at the present day. We will leave the criticism of this to Mr. MacColl, who says:—

Mr. March Phillipps's argument runs: Greek life and architecture depended on symmetry and proportion; architecture ought to express life; modern life does not depend on symmetry and proportion, therefore modern architecture should have nothing to do with symmetry and proportion; and the use of Classic forms is "a cold and bloodless convention." Now, since all architecture, like all life, aims at symmetry and proportion, this argument falls at once to pieces. What is true is that the uses of architecture change, and that to import from a sunny, almost windowless country into our northern climate a Greek portico may sometimes be an absurdity. It is also true that there is an element of superstition in the taking over of every detail of Greek column, capital, and entablature. There was this element of superstition in Greek architecture itself—such things as triglyphs. But when Mr. March Phillipps says—

"The forms and features it [the Palace front] employs are transplanted bodily out of the art of another age and race. The long array of acanthus-leaf capitals of the Palace front, the rigid mouldings [Does Mr. Phillipps want them to wobble?] of the entablature, all the details of frieze and pediment, reiterated with a kind of deadly mechanical precision, are all of them forms which, when they enclosed Classic life, themselves lived with that life. But this life of theirs was lived many centuries ago, and we to-day can no more revitalise the actual forms of Classic art than we can live over again the thoughts which inspired them,"

he is confusing what in Greek art is eternal, discovered once for all, with what is changeable. The Corinthian capital is a late Greek invention and a rather unstable one, not so inevitable as those other two solutions, the Doric and Ionic. It is, moreover, a little too finicking in detail for use at a great height, or in a dull, smoke-laden atmosphere. But the acanthus itself! If there did not exist in nature something like an acanthus, architects would one day or another have invented it, Greeks or no Greeks. It is *the* inevitable architectural vegetable, being simply a radiation of ramping lines connected by indented curves. . . . It is arguable that modern architects have accepted the ready-made too easily; but that is because they have been so bent on their main purpose of rhythmical distribution that they saved their energy in detail. An Inigo Jones or a Wren makes occasional use of the column or pilaster for strong emphasis; but he can do without them. Was rhythm ever more perfect than in Coleshill, where there is neither, or in Hampton Court Palace, where the use is so reserved? In those and a hundred other examples is building completely adapted to its uses, employing "Classic" forms in lovely adaptation to modern life, in perfect expression of English life; and the man who does not thrill when he looks at the window spacing and the chimney stacks of Coleshill, Classic trimmings and all, knows nothing about the Parthenon.

THE ECONOMY OF FRENCH GOTHIC.

"FRENCH Gothic as a system of construction" formed the subject of an interesting address which Mr. W. H. Bidlake delivered to a large gathering of members of the Birmingham Architectural Association last week (the president, Mr. G. Salway Nicol, in the chair).

Mr. Bidlake remarked that Gothic reached its fullest expression in the great French cathedrals in the neighbourhood of Paris, and in them they found a complete elimination of the inert stone of earlier buildings. Sufficient only was left in the piers to support the weight of the vault and in the flying buttresses, reared like scaffolding, to resist its thrust. For the rest, sufficient wall was left round the building to enclose it; the remainder became practically a sheet of glass. In the end, what with the triforium, walled passages and open arcades, the masonry of the cathedral became almost completely cellular. In this development the vitalising force was the desire to cover the building with a stone vault, and, secondly, to rear it into the air. Mr. Bidlake instanced the remarkable elevation of 140 ft. in the case of Amiens, and of 160 ft. in the case of Beauvais. By means of lantern slides and diagrams he showed the nicety with which the builders had balanced the thrust and counter-thrust, vault pressure and buttresses. It was in the cross-vault, he said, they had the potent force which revolutionised architecture in the Middle Ages. In the Gothic development cross-vaults were adopted to economise in construction, and the system of economising material having been introduced into the vault it was introduced into every other part of the building. He showed the introduction of a stiffening transverse arch, which led to that particular sort of vault so characteristic of the French, and was illustrated at Canterbury, though comparatively rarely found in this country. In the developed French style of vault they found the transverse rib thicker than the diagonal, although it was the diagonal rib that did the work. This was very interesting in these days, because it was one of those instances of the continuation of a member which had become more or less obsolete in the development of the organism. There was really no necessity why the transverse rib should be stronger than the others. In this country we did not make it so, but it was a continuation of the tradition of stronger transverse arches which they saw in the earlier style in the south and the west. The more they examined the great buildings of the Gothic period the more they were struck by the economy of material. Referring again to the height to which the buildings were raised, Mr. Bidlake said there were examples of a number of devices adopted in order to maintain the equilibrium, and certainly they were very ingenious, but at the same time they showed how completely French Gothic at its best was a house of cards. The buildings could hardly be trusted to stand the moment there was an earthquake. How precarious was the balance of these great cathedrals! And with what extraordinary nicety the builders had—he would not say calculated, but felt what they were doing. French Gothic was practically the structure of a bird's wing. There was not a single portion of it one could afford to cut away; if they did, collapse would result. The whole thing was trembling with nervous activity. He had seen, he thought, about thirty French cathedrals, and he thought Bourges was far and away beyond the rest. A building like this seemed to be expressive of the same combination which they felt in a highly-educated and highly-strung human being. He could hardly think of anything in the works of man in which the triumph was more complete than to take inert matter and make it living with one's own personality; and that, he thought, was what the Gothic builders had succeeded in doing. They had projected themselves into the material itself.

THE WESLEYAN METHODIST HALL, WESTMINSTER.*

BY H. V. LANCHESTER, F.R.I.B.A.

IT would be as well to start with a brief reference to the competition which was instituted by the trustees of the Twentieth Century Fund for the purpose of obtaining the design for this building. Sir Aston Webb was appointed assessor, and the conditions provided for a double competition. In the first competition we submitted two designs, one adopting an axis from the Victoria Street corner. This diagonal scheme, however, did not reach the second stage, and consequently the design we had to develop was on the east and west axis, though it ultimately bore little resemblance to our original sketch, for the following reasons:

In common with many other competitors, we had placed the large hall, which was the main feature of the building, on the ground floor. In revising the conditions for the second competition the trustees added a clause requiring the large hall to be placed on the first floor, doubtless considering that this would be a more convenient arrangement for their purpose, and that a building so planned would be architecturally more effective. What is really needed is the opening up of the east front by setting back the line of the Westminster Hospital, and now that the removal of the hospital has been decided on, such a course becomes obviously desirable, not only on architectural grounds, but also because Broad Sanctuary is quite inadequate to the requirements on ceremonial occasions.

Westminster Hospital Site: A Suggestion.

The site at the back of the hospital is occupied by His Majesty's Stationery Office, which is shortly to be removed to Stamford Street. This land, having no frontage to an important street, is not of exceptional value. The course for the Government, therefore, is to give about a third of its area to the Governors of Westminster Hospital in exchange for a corresponding area fronting Broad Sanctuary. The hospital would be just as well off with this exchange as it is at present; the Government would give up land about half the value in proportion to that on which the hospital now stands, and the nation would get the immense advantage of a wide, dignified space in a position where it is absolutely needed. I am glad to say that the London Society has taken the question up and is considering how best to forward the scheme.

But to return to the building itself. The principal requirements were: (1) Large hall, seating 2,500; (2) small hall, seating 600; (3) library of the same size (these two to be thrown together on occasions); (4) conference hall; (5) a room of the same size (now occupied by the London City and Midland Bank); (6) tea room, to seat 1,000; (7) four committee rooms; (8) a block of offices.

We placed 2, 3, 4, and 5 together on the ground floor, and 7 at a slightly different level to the west of them. The offices formed a block occupying the whole of the west front above and below 7, and the only internal areas are between this block and the large hall. The tea room is in the basement.

The main staircase we found a very difficult problem in planning. On account of the large proportion of the first floor taken

up by the great hall, the only treatment that seemed to us satisfactory was its return backwards over the entrance vestibule, and this involved an exceptional amount of study in order to avoid effects that would have been noticeably forced and uncouth. In view of the fact that the hall is 35 ft. above the street, this staircase has been frequently noticed as disguising the height to a marked degree, and we feel it a great compliment to find that it has been imitated where the original difficulties leading to its inception did not exist.

Details of Construction.

Reinforced work has been extensively used in the interior, for the reason that it is more homogeneous than any of the combinations of steel rollings with concrete and other materials. Our choice fell on the Kahn system as providing a bar that, once in position, was visibly adjusted to take up the strains provided for before filling-in commenced. Of course, there are other systems that achieve this aim, but we have not had the slightest ground to regret our selection.

In the general framing up of this building the heaviest weight accumulated at the eight angles of the main dome. Starting from the top, we have the outer dome, a relatively light shell, the much heavier concrete inner dome, the concrete and masonry of the pendentives and the arches across the transepts; then the girders carrying the overhanging galleries, a proportion of the walls and floors below this, and, finally, the weight of the piers themselves. With allowances for wind pressure, etc., the weights reaching the foundations at each of these points range from 500 to 600 tons, and as it was, of course, desirable to equalise the weight as much as possible a steel raft was provided under each pair of piers, which gave a distributed weight of two tons to the foot super. Under the whole of the remainder of the building was a reinforced concrete raft of varying thickness, and the weight on this generally was about 1½ tons per foot super. The excavation brought us down to a uniform bed of sand, and I am pleased to say that not the slightest settlement is observable, despite the fact that the tunnel of the District Railway adjoins the building. The eight main piers to which I have referred were formed of steel sections, at the angles of a 3-ft. square, tied together with steel lattice-work, and entirely encased and filled with cement concrete. We ourselves worked out the methods of construction in these, and throughout the rest of the building, but we were indebted to Mr. de Colleville, then with the Trussed Concrete Steel Company, for checking our calculations and supplying details of connections, riveting, etc. The remaining piers were of reinforced work with vertical bars and horizontal lacing. The basement floor is 7 ft. above the bottom of the concrete, which gave us the requisite depth for distributing the weight under the heavier piers and for the provision of ventilating and pipe ducts. The large spaces on the basement floor were covered with thin reinforced concrete vaults, carrying a flat floor about 8 ft. above the street, which is the ground floor of the main building. The floors above this are constructed of reinforced concrete, with hollow tiles to reduce weight.

The galleries demand some description.

As previously mentioned, they are mainly supported by deep girders connected to the lattice stanchions; these form the fulcrum from which they cantilever forward, while the back is built in the main walls. The ramps pass over, and the soffits under, these main girders, so that the cantilevering does not entail excessive weight. Over the galleries are the transept vaults, elliptical in form, and thickened into strongly reinforced beams under the vertical walls of the outer dome. From these beams and the pendentives springs the coffered inner dome of reinforced concrete, with two rings of steel plate to resist the outward thrust.

The Dome.

Although the large hall is 70 ft. in height, its dome would hardly be visible from outside, and the outer dome, relatively light in construction, rises some 50 ft. higher, exclusive of the lantern above it. As our design based itself on the conception of a square dome with the angles cut off, forming an irregular octagon, we necessarily had to meet the special constructive requirements that such a form demands. A circular dome is relatively easy to construct, there being no tendency to distortion; but all other forms have an inclination towards the circular, a straight-sided dome tending to bulge horizontally between the angles. Our first step was to provide at the base a plate of great horizontal rigidity firmly tied at the angles. As the weakest points were towards the middle of the four long sides, we treated the ribs in this position as principals tied right across; these are in pairs, connected together at the top with a braced ring, which carries the lantern and links up the angle-ribs, which are also braced on similar lines. These ribs and the intermediate ones carry the steel purlins and timber rafts of the dome covering.

The heating is by low-pressure steam, and in all the more important rooms the heating and ventilation were combined by the employment of steam batteries in ducts supplying fresh air, and the temperature is regulated automatically by means of thermostats. There are two intakes, with filters and blowers, one in the north transept for the great hall, and the other in the position of the south-east tower (not built) for the remaining large rooms. The outlets are likewise separated, those in the great hall communicating with the space between the inner and outer domes, which is open to the lantern at the top, and the outlets to the other rooms passing down to the sub-basement, in which ducts are formed, carrying the air to an extraction chamber that delivers into one of the two internal areas.

A Reply to the Critics.

Criticism has more than once levelled its guns at some of the objects employed conventionally to enhance the expression of the activity and force of Methodism, but I can safely appeal to my brother architects in asking for an endorsement of the axiom that the important matter is the character of expression as a whole, and that if the details merge legitimately into this their use is justified. Criticism of the kind mentioned is not that of the artist, but rather of those who, while blind to the full comprehension of a design, imagine that they can assess its merits or demerits by the analysis of its component parts.

Discussion.

Sir Aston Webb, proposing a vote of

* Substance of a paper read at the R.I.B.A. on Monday, November 17th.

thanks to Mr. Lanchester, recalled how, when assessing the competition for the Wesleyan Hall, he came across a little drawing which, although extremely sketchy, seemed to have the germs of a good design in it. This, of course, had proved to be by Messrs. Lanchester and Rickards. The Wesleyan Hall, he thought, was a good instance of the value of two competitions. The trustees had not realised the great problem that they were setting before architects, and it was not until the second competition that it was decided to put the great hall in the upper part of the building. This decision was prompted by the occasional use only of the large hall and the very frequent use of the small ones.

He remembered that he made the suggestion to the architects that the main entrance might be larger and, after seeing the views of the building that had been shown on the screen, he was not sure he would not say the same now. Referring to Mr. Lanchester's suggestion with respect to the Westminster Hospital site, Sir Aston said he thought a great improvement would be effected if the idea could be carried out. In order to secure a better effect, he believed that Messrs. Lanchester and Rickards had desired to push back the site for their own building, but it could not be done, and the east front suffered in consequence.

With respect to the construction, the architects had used reinforced concrete in a bold and successful manner. Reinforced concrete was in its infancy, and it would

be extremely interesting to know all about its use in such an important instance as the present. With regard to the architectural clothing of the building, he thought the architects had chosen the right and almost the only treatment. There were Gothic towers and ecclesiastical buildings all around, and it was only natural to adopt a dome. It did not attempt to compete with St. Paul's, but it did give an effect that conveyed the importance of the great body that it represented. He would be glad when the panels on the building were devoted to the purpose for which they were originally intended, some of them now bearing the name of a bank, and he looked forward to the day when the money-changers would be swept out of the temple.

Mr. George Corderoy, in seconding the

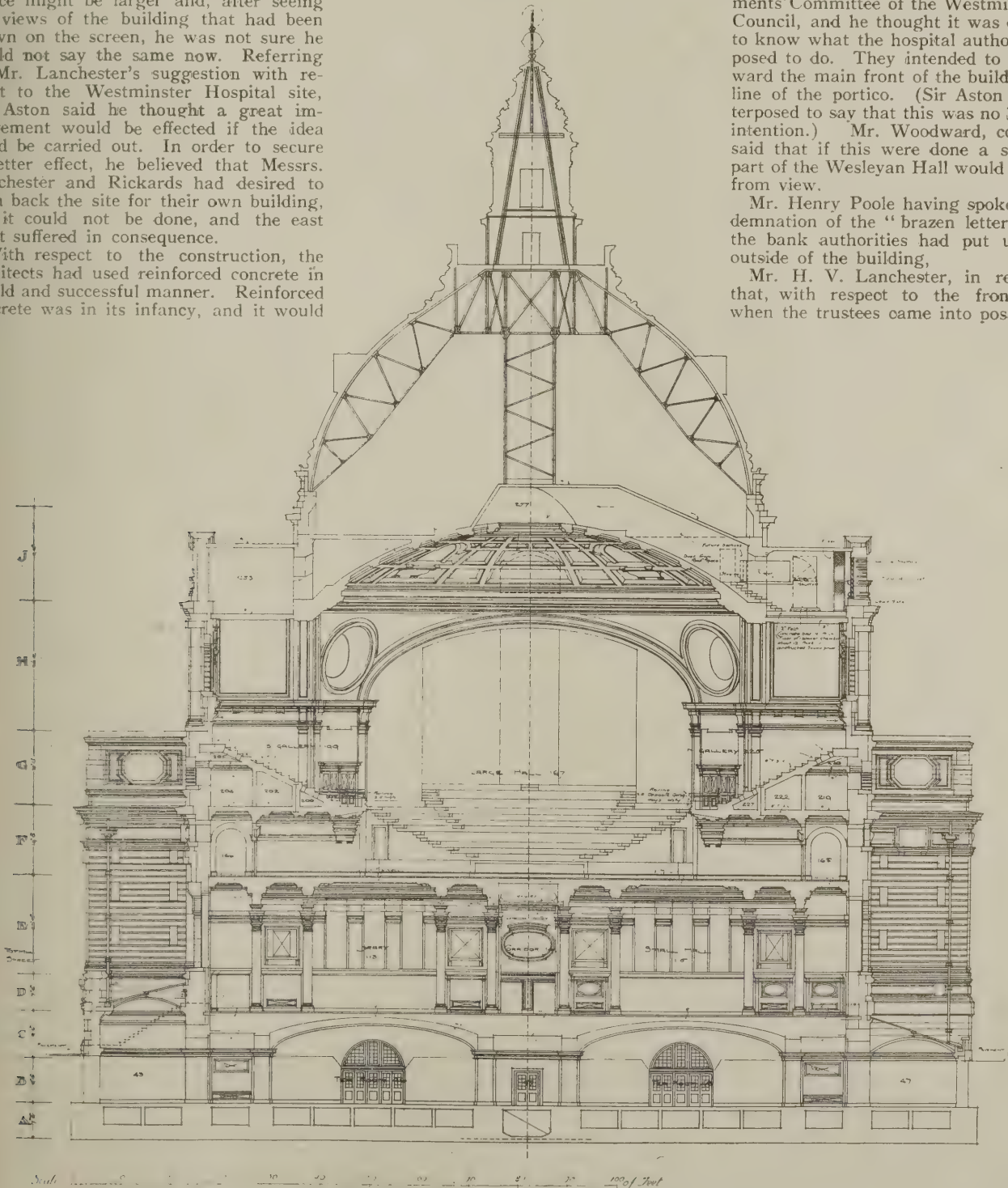
vote of thanks, said it was of great interest to know that the building worked out at 15s. per foot cube—a remarkably economical result.

Mr. F. L. Dove, the contractor who erected the building, commented upon one or two points of detail, referring particularly to the cantilever truss over the galleries, which was a marvel of construction. It was tied back to the walls, and there was not the slightest vibration. The inner dome over the great hall was entirely of reinforced concrete, and, although comparatively thin, had a great amount of work to do.

Mr. William Woodward said he agreed that it was an admirable idea to have once in a session a paper descriptive of a big recent building. He happened, he continued, to be a member of the Improvements Committee of the Westminster City Council, and he thought it was of interest to know what the hospital authorities proposed to do. They intended to bring forward the main front of the building to the line of the portico. (Sir Aston Webb interposed to say that this was no longer the intention.) Mr. Woodward, continuing, said that if this were done a still larger part of the Wesleyan Hall would be hidden from view.

Mr. Henry Poole having spoken in condemnation of the "brazen letters" which the bank authorities had put up on the outside of the building,

Mr. H. V. Lanchester, in reply, said that, with respect to the frontage line, when the trustees came into possession of



THE WESLEYAN METHODIST HALL, WESTMINSTER: CROSS SECTION.
LANCHESTER AND RICKARDS, F.F.R.I.B.A., ARCHITECTS.

the site they offered a strip of land on the east front to the Westminster City Council, who, however, rejected it. He thought that the improvement of Broad Sanctuary was a matter for the nation. There was ample room for traffic, but not enough for spectators when the King came to the Abbey.

With respect to reinforced concrete, in a future work they might make a little variation in detail, but it had certainly fulfilled all their expectations. The lattice squares, as he had explained, were filled with concrete, thus forming a compromise between steel construction and reinforced concrete. The height of the building was over 200 ft., and he thought it a matter for congratulation that there had been no serious accident during the whole work of construction.

NEW MUNICIPAL WORKS.

The Local Government Board have held or have decided to hold inquiries into proposed expenditure by public bodies as follows:

Waterworks.—Widnes Borough Council, £20,000 (November 25th); Durham Rural District Council, £2,700, for Cassop-cum-Quarrington and Coxhoe (November 27th).

Sewerage, Drainage, and Sewage Disposal.—Swansea Borough Council, £32,000 (November 25th); Porthcawl Urban District Council, £10,853; Wigan Rural District Council, £1,500, for Shevington (November 26th); Eccles Borough Council, £56,554 (November 27th); Hunslet Rural District Council, £3,000 (November 28th).

Street Improvements.—Willesden Urban District Council, £2,099 (November 24th); Nottingham Corporation, £1,937 (November 25th).

Various.—Redditch Urban District Council, working class dwellings, £6,848 (November 20th); Mexborough Urban District Council, public baths, £5,730 (November 24th); Bedford Borough Council, electricity undertaking, no amount stated (November 25th); Shipley Urban District Council, isolation hospital extension, £2,900; Wiveliscombe Urban District Council, housing, £4,824; Blaydon Urban District Council, depots, £1,300; Wem Urban District Council, cattle market, £4,000; Gillingham Borough Council, electricity undertaking, £6,600 (November 26th); Reigate Borough Council, electric lighting, £1,000; West Riding Yorkshire County Council, Menston Isolation Hospital extension, £3,000; West Thurrock Parish Council, burial ground, £2,920; Tredegar Urban District Council, gas undertaking, £10,000 (November 27th); West Ham Borough Council, electricity undertaking, £21,500, buildings at highways depot, £3,660; Cricketh Urban District Council, housing, £3,100 (November 28th); Honiton Rural District Council, housing and town planning, no amount stated (December 3rd).

The Welsh National Museum.

Good progress is being made with the National Museum of Wales, Cardiff. The contractors, Messrs. E. Turner and Sons, have completed their work on the foundations, and Messrs. H. Wilcock and Co., Wolverhampton, have taken possession of the site, on which plant is being set up for the erection of the superstructure.

MATTERS OF MOMENT IN ARCHITECTURE.*

BY PERCY B. TUBBS, F.R.I.B.A.

In my last address I made a suggestion that there was room for two professional societies to look after the best interests of our profession. Since then I have had twelve months in which more fully to consider the matter, and although I read with great interest a considerable amount of adverse criticism in the professional press, I see no reason to alter the view that I then expressed; in fact, if anything I feel more strongly on the subject now than I did then, and I should very much like to see representative committees of both institutions meeting to consider the question in all its bearings.

Registration.

The Society during the last few months inaugurated a press campaign in the interests of the compulsory registration of architects, and from the wide publicity given to the matter we have been able to secure the keen interest of influential members of both Houses of Parliament, and of others, but we are sadly handicapped through the lack of unity in the profession.

The benefits that would accrue from statutory education and registration must be patent to all, as, in protecting the interests and raising the status of the trained and fully qualified architects not only would the public have a guarantee of professional ability, but it would do more than anything else to get rid of those who, to the detriment of the public, do not hesitate to poach in a domain which by education and experience we ought to have the right to regard as strictly our own.

A New Class of Member.

In view of the rapid growth of the Society, the Council thought it desirable last year to revise the Articles of Association, not only providing for present needs, but more particularly for future development, and in doing so to form a new Graduate Class intermediate between the Junior Section and full membership: entrance to the new class to be by examination only.

Architectural Education.

The part played by this Society in placing upon a working basis the proposals for the introduction of the Beaux-Arts method of educating architects into this country, resulted in the formation of an influential committee. That committee, which is now an entirely independent one, is working on a scheme which strikes at the root of the whole matter. The atelier in Wells Mews is being most enthusiastically supported by the students there, and one has only to attend the various exhibitions of the students' work that are held from time to time to see the remarkable strides that have been made in these few months in architectural composition and design.

A Ministry of Fine Arts.

Last year I expressed the opinion that the time was fast approaching when architecture will come into her own again, and resume that place in the public estimation which is her due, and which she enjoys in more favoured countries, and we see evidence of this in a movement which has recently been started. A committee will, I believe, shortly be formed to consider

fully the question of a Minister of Fine Arts. I cannot help thinking that if committees were formed in provincial towns with a central committee in London a great deal of useful work could be done in this direction, and I believe that the literature they might publish for the information of the general public would very soon arouse sufficient interest for the Government of the day to consider the whole question; they might even appoint a Royal Commission to investigate the matter. I feel certain that a Minister of Fine Arts will be regarded in the near future as a necessity, and steps should be taken without delay to bring the matter very clearly before the powers that be.

It is rumoured that the London County Council has already taken steps to appoint an independent architect, who will be available, free of charge, to advise building owners as to the suitability of their designs for any building on important sites in London, and one can at least express the hope that this will be the thin end of the wedge for the appointment of a Minister of Fine Arts, and that London's example will be speedily followed in other large cities.

Town Planning.

Town planning schemes are being prepared in a great many districts around London, and if steps are to be taken to provide a boulevard on the outskirts, there is no time to be lost. I have made a trip round London on about the seven mile radius, and I think, as far as the north-west, north, and north-east districts are concerned it could be done at comparatively small cost, and it would prove, I believe, a real boon to London, and should be considered in connection with the town planning schemes now being prepared.

Another point which I should like to emphasise is the question of improvements to be carried out in our big cities. It seems to me that if a committee of architects could be formed to consider the maps of the various towns in detail, and to lay down on the maps the street improvements which should ultimately be carried out when the opportunities arise, with due regard, of course, to the preservation of ancient monuments and fine old buildings, our towns and cities would ultimately become as beautiful as possible, and we should be all the time working to that end.

Craftsmanship.

Another very important matter which should receive careful consideration is that of the encouragement of craftsmanship. As an example, one way of bringing this about would be to increase the responsibilities of the men entrusted with the work. I should like to see the man actually in charge of the work take his own particulars from the job, carry it out himself, and fix it at completion. A certain well-known architect designed a village hall and recognised the merit of the workmen by having their names carved on one of the beams in the clubroom. This is the kind of encouragement the men appreciate; the architect in question had every reason, I understand, to be grateful to the men for the way his design was interpreted and carried out.

It seems to me that such matters as architectural education and registration, architectural competitions, a scale of charges, a Ministry of Fine Arts, professional defence, official architecture, and other matters would be enormously helped if we could only be united and pull together in the right direction. Our greatest chance of success lies in our being a united profession.

* Extracts from the Presidential Address to the Society of Architects.

THE CONDITIONS OF BUILDING AND ENGINEERING CONTRACTS.—VIII.

Being an Explanation of the Clauses of the General Conditions of Specifications and the Legal Decisions affecting them.

SPECIALLY CONTRIBUTED BY E. J. RIMMER, M.Eng., B.Sc., A.M.Inst.C.E., of Lincoln's Inn and the Northern Circuit, Barrister-at-Law, and KENNETH G. THOMAS, B.A., LL.B. (Cantab.).

(Continued from page 46, No. 984.)

Parenthetical numbers in the text refer to cases noted at the end of each section.

CHAPTER VI.

THE VESTING OF PLANT AND MATERIALS.

The provisions in reference to the vesting of plant and materials are usually contained in a clause which states that all plant, implements, tools, materials and apparatus provided by the contractor and brought upon the works, or lands used in connection with the works, shall either "become" or "be deemed to be" the property of the building owner during the progress and until completion of the works; that the contractor shall be prohibited from removing the same without the consent in writing of the engineer; and that the contractor shall be responsible for the repairs to or loss of such plant or materials.

By virtue of this clause the building owner obtains a certain qualified property in the plant, materials, etc., of the contractor from the time at which they are brought upon the works, or lands used in connection with the works. It is a property which comes to an end only in accordance with the wording of the clause, *i.e.*, upon completion of the works by the contractor, or, before that time, by the consent of the engineer.

The chief importance of the vesting clause is in connection with the possible insolvency or bankruptcy of the contractor; and the two matters to be considered under the clause are:—

1. The nature of the property in the plant, materials, etc., which passes to the building owner.
2. The effect of the "Reputed Ownership" clause (Sec. 44) of the Bankruptcy Act, 1883, upon the rights of the building owner in the property, if the contractor should become bankrupt.

1. The property in the materials *which are actually put into the building or works*, apart altogether from the operation of this clause, undoubtedly vests in the owner of the land; and such materials cannot be removed therefrom without his consent; but the property which the building owner obtains by reason of this clause in the materials and plant which are not fixed to the land is by no means an absolute one. Although it might appear from such a clause as the one referred to that the property vests absolutely in the building owner when brought upon his lands or works, yet other clauses in the contract are inconsistent with this view, and the Courts, in determining the true intention of the parties to the contract, will interpret one clause in the light of other clauses. Thus the "Forfeiture Clause" (Chapter VII.) gives to the building owner the right to enter upon the works and take possession of the plant and materials thereon on the happening of one of several specified events. It is therefore clear from that clause that the building owner was not intended to have such a property in the plant and materials, before the happening of such event, as would enable him to take possession of and sell the materials and plant. Similarly, the clause which imposes upon the contractor a duty of completion plainly demonstrates the intention of the parties that, though the materials and plant have ceased

to be the property of the contractor, yet he shall have a right to use them for the completion of the contract. And, again, a clause which empowers the contractor to remove all surplus materials from the site upon completion of the work is inconsistent with the view that the absolute ownership of such materials is in the building owner.

It has been held that the property of the building owner under a Vesting Clause in the materials and plant not affixed to the site is not so absolute as to enable a sheriff to seize them under an execution upon a judgment against the building owner. (58.)

On the other hand, it has been held that, by such a clause, the building owner obtains such an interest in the materials and plant when brought upon the works or land as will disentitle the sheriff to seize under an execution of a judgment creditor against the contractor, and that if the contractor fails to complete the work the building owner will be entitled to the materials and plant. (59.)

2. In considering the effect of the bankruptcy of the contractor in connection with the Vesting Clause, it is of importance to notice the time at which the building owner acquires his property in the plant and materials, whatever the nature of such property may be. A clause which vests the property in the building owner on the happening of the bankruptcy of the contractor is void against the Trustee in Bankruptcy, because his title to property relates back to the time of the first of the acts of bankruptcy proved to have been committed by the bankrupt within the three months next preceding the presentation of the bankruptcy petition, unless the transaction passing the property was made before the Receiving Order was issued, and without the person to whom the property was transferred having had notice of an available act of bankruptcy. (See Bankruptcy Act, 1883, ss. 44 and 49.)

However, a clause such as the one quoted passes the property to the building owner, *not* upon insolvency, but upon the materials and plant being brought upon the works or lands, and, subject to the "Reputed Ownership" Clause, will defeat the rights of the Trustee in Bankruptcy.

The "Reputed Ownership" Clause (Sec. 44) of the Bankruptcy Act, 1883, may, in spite of the Vesting Clause, make void as against the Trustee in Bankruptcy the rights of the building owner to the plant and materials brought upon the land or works by the contractor, for by Sec. 44 of that Act the property of the bankrupt includes:—

"All goods being, at the commencement of the bankruptcy in the possession, order, or disposition of the bankrupt, in his trade or business, by the consent and permission of the true owner, under such circumstances that he is the reputed owner thereof"; and as such passes to his Trustee.

Herein lies the danger of the Vesting Clause: for it is clear that the goods are, unless special circumstances exist, "in the possession, order, and disposition" of the contractor and therefore if—

- (i.) The building owner is the true owner of the goods and
- (ii.) the con-

tractor is the reputed owner of the goods, this section of the Bankruptcy Act will apply.

(i.) It is probable that, where a Vesting Clause states that the plant and materials brought on to the lands or works by the contractor shall *be* the property of the building owner, the latter will be held to be the true owner so as to create the possibility of a reputed ownership of the contractor arising. But where the clause provided that the plant and materials brought on to the lands or works by the contractor should be *deemed* to be the property of the building owner, and it was further stated that the latter should not be responsible for the loss of or damage to such plant and materials (and in addition the contract contained no provision for re-vesting the property in the contractor), it was held that no absolute property had passed to the building owner. (60.) However, Farwell, L. J., decided (61) that the words "be considered the property of the Company" were sufficient to pass such interest in the property to the building owner (the company) as to defeat the rights of a holder of a bill of sale.

Where by a bill of sale the ownership of the goods was given to the building owner, and by the same instrument consent was given to their remaining in the possession of the builder as if the builder were the true owner, the reputation of ownership was held to arise. (62, 63.)

(ii.) The question whether the contractor is the reputed owner of plant and materials brought upon the site or works depends partly upon the surrounding circumstances and partly upon the framing of the Vesting Clause.

A circumstance may have great weight in the decision of the Courts. For instance, where plant is marked with the name of the building owner, such a circumstance tends to remove the reputation of the ownership of the contractor, and may defeat the rights of the Trustee. On the other hand, the circumstance of plant bearing the name of the contractor would, in the absence of other circumstances to the contrary, tend to establish reputed ownership.

As regards the reputed ownership of materials *brought upon the ground to be put into the work*, the dictum of Wright, J., in his judgment in the case of *re Keen* is important. He said (p. 237):—

"The building owner merely consented that they (the materials) should remain on the land for the very purpose for which they were placed there. It has been said in some cases that the true owner is not to suffer under this section of the Bankruptcy Act unless there is something which might be described as unconscientious in the way the goods have been left in the debtor's possession. . . . I do not know what else the School Board (the building owners) were to have done, and I do not see what kind of notice they could have given. The contractors would certainly not have allowed them to stick up a notice to the effect that the goods were not removable in the event of bankruptcy."

If this is good law—but it must be observed that Bigham, J., gave a concurring judgment in this case upon other

grounds, viz.: that the property had never passed to the building owner—it would appear that the reputed ownership in such materials cannot arise. It was further held in this case that on the Trustee's failure to comply with an order to proceed with the works, the building owner was entitled to forfeit such plant and material (under a forfeiture Clause) after a Receiving Order had been made against the bankrupt contractor. Bigham, J., said (p. 561):—

"Though the goods were, at the date of the Receiving Order, the goods of the builders, the contract provided by clause 20 that on a certain contingency—that is to say, in the event of the builder or his trustee neglecting to proceed with the work for seven days after receiving notice in writing to do so—the plant and materials on the premises should be forfeited to the Board. The Trustee, when his title to the goods accrued, took them subject to the contingency. The builder's title to the goods was a defeasible one, and the Trustee could have no better title. Here that contingency happened, and transferred the property from the trustee to the School Board."

Conclusions.—In reference to the advisability of inserting a Vesting Clause in the contract, therefore, two considerations must be weighed.

1. If such a clause is inserted, reputed ownership under Sec. 44 of the Bankruptcy Act, 1883, may deprive the building owner of his property in the plant and materials of the contractor, but he will have a good title as against all other claimants.

2. If no such clause is inserted, but a forfeiture clause (Chapter VII. *post*) simply, the building owner will have no property in any materials or plant which the bankrupt contractor owned at the time of the commencement of the bankruptcy; and, although, as in *re Keen* (*supra*) forfeiture may take place even after the Receiving Order has been made (as the Trustee in Bankruptcy will only take a title subject to the obligations under the contract) yet the building owner will not have a title against a holder of a bill of sale or an execution creditor. (64.)

It appears, therefore, that, in order to protect the building owner, it is desirable to insert in the contract a Vesting Clause which gives the building owner such an interest in the goods as to defeat the rights of a holder of a bill of sale or execution creditor, but that in view of the unsettled state of the law as to the application of the "Reputed Ownership" Clause in such a case all precautions should be taken (by means of notices, etc.) to avoid the reputation of ownership of plant and material by the contractor arising.

Cases referred to in the Text:

(58.) *Beeston v. Marriot* (1863) 8 L.T., 690.—The Vesting Clause provided that the materials and plant brought upon the site should "become and be the absolute property of the building owner," but that after the due completion of the work the building owner would give to the contractor as part consideration for the performance of the contract the plant and unconsumed materials. *Held*, that the building owner had not so absolute a property in the plant and materials as to be seizable by the sheriff under an execution upon a judgment against him.

(59.) *Hart v. Portgarn Harbour Co., Ltd.* (1903) 1 Ch., 690.—The Vesting Clause provided that all plant and materials should "be considered the property of the company until the certificate of completion." *Held*, that the words were sufficient to pass the property in the goods to the building owner until such time as the contractor had fulfilled his obligation to complete the works, and therefore upon the failure of the contractor to complete, the building owner had a good title as against the holder of a bill of sale or judgment creditor.

(60.) *Re Keen* (1902) 86 L.T., 235.—The Vesting Clause provided that all plant work and materials

brought to and left upon the ground should "be considered to be the property of the company." The contractors became bankrupt. It was held that at the date of the bankruptcy the property in the plant and materials was not so absolutely that of the building owners as to cause the reputed ownership clause of the Bankruptcy Act to apply, and that as the Trustee in Bankruptcy did not comply with notices given by the building owner (under the forfeiture clause) to proceed with the work the building owner might on such failure by the Trustee enter upon the works and forfeit such plant and material.

(61.) *Hart v. Portgarn Harbour Co., Ltd.* (1903) 1 Ch., 690 (see case 59 *supra*).

{ (62.) *Re Ginger* (1897) 2 Q.B., 461. } —In these
{ (63.) *Re Weibking* (1902) 86 L.T. 455. } cases the building owner obtained the property in plant and materials under a bill of sale, and by the terms of the contract agreed to allow the contractor to remain in possession of the plant for the purposes of the work. The contractor became bankrupt and the trustee claimed the plant under S. 44 of the Bankruptcy Act 1883. *Held*, that at the time of the bankruptcy the building owner was the true owner of the property which with his consent was in the possession, order, and disposition of the bankrupt, so that he was the reputed owner, and that under these circumstances the trustee obtained a good title to the plant.

(64.) *Byford v. Russell* (1907) 2 K.B., 522.—In the contract in this case there was no Vesting Clause, but a forfeiture clause only. The sheriff seized the plant on behalf of an execution creditor, whereupon the building owner gave notice to the contractor under the forfeiture clause and claimed as against the execution creditor a lien upon the plant. *Held*, that the seizure of the sheriff prevented the building owner's right of lien taking effect.

THE LATE MR. JOHN BELCHER.

At the last meeting of the R.I.B.A. the following resolution was carried:

"That the Royal Institute of British Architects desires to express its high estimate of the valuable and productive labours of its late distinguished Fellow, Mr. John Belcher, R.A., in furtherance of the advancement of architecture, and of the eminent services he rendered the Institute as member of Council and President; and that the Institute do record its sorrowful regret at his demise, and do offer to his widow an expression of sympathy and condolence with her in her bereavement."

Mr. E. Guy Dawber, in moving the resolution, said that Mr. Belcher's connection with the Institute dated back to the year 1869, when he became an Associate. He was elected a Fellow in 1882, served the Institute on the Council and various committees, and was called to the Presidential Chair in 1904, holding the office for two years. As President of the Institute it fell to him to preside also over the International Congress of Architects held in London in 1906. Those who took part in the Congress would recall the admirable manner in which he discharged the onerous duties of his position, and the self-sacrificing devotion with which he threw himself into the task of making the Congress a success, not only delivering a very able opening address at the Guildhall and presiding at the principal meetings, but contributing also a well-thought-out paper on the subject of the education of the public in architecture. One recalled with gratification the tribute paid to him by the various architectural associations of the Continent and the United States represented at the Congress, who showed their appreciation of his conduct of the proceedings by bestowing upon him the Honorary Membership of their societies. He need not remind the meeting of his (Mr. Belcher's) distinguished services to their art. His architectural achievements were the admiration of them all; nowhere had the judicious use of sculpture and painting been more successfully applied. The building of the Institute of Chartered Accountants was a standing monument to the happy results that could be attained by the sympathetic collaboration of the architect, the sculptor, and the painter. The

estimation in which his work was held was demonstrated in 1907, when, by the unanimous vote of his brother architects, he was presented with the Royal Gold Medal for Architecture. Mr. Belcher, too, had won well-deserved recognition by his literary work. The exhaustive volumes on the English Renaissance, which he produced in collaboration with Mr. Mervyn Macartney, were universally known and appreciated. His more recent work, "Essentials in Architecture," was published with the laudable object of stimulating popular interest in architecture and of teaching the public how to distinguish what was good and what was bad in the art.

Professor Beresford Pite, in seconding the resolution, said he ventured to suggest that the name of Mr. Belcher's brother, who himself was an Associate of the Institute, be included in the resolution of condolence. Mr. Belcher, he continued, had an ancestral connection with architecture. His father worked in a style of refined Classicism, and, incidentally, maintained a high business reputation. Of his warmth of nature, of his virtue of character, of his sympathy with and enthusiasm for art, his modesty, his great refinement, his ingenuousness in design and his ingenuousness in charm, of the deep underlying charity of his nature, all who knew him were fully conscious. He was one of the kindest men it was possible to meet. Many of the leading builders of the day—the late Mr. Howard Colls, for example—became his fast friends. All who were brought into contact with him felt the charm of his subduing friendship. Nothing he ever designed or did was characterised by an error of taste. His art was sympathetic with the picturesque and romantic rather than with the severe and classic. His nature, indeed, was responsive to all expressions of art, and he never failed to stimulate young men with the enthusiasm and encouragement of his friendship.

Of all modern architects he was the first to feel the breadth of his art—that it included sculpture and painting, as well as building. He employed at one time or another the late Mr. Armstead, Mr. Hamo Thornycroft—his old schoolfellow (who was with him at the end), Mr. Harry Bates, and Mr. Alfred Drury.

He came late in life to the Council of the Institute, but his presidency was notable for the number of eminent men who became associated with the Institute as a result of his personal influence. They included Mr. Reginald Blomfield, Mr. Ernest Newton, Mr. W. R. Lethaby, Mr. Prior, Mr. Mervyn Macartney, Mr. Gerald Horsley, Mr. E. J. May, Mr. Halsey Ricardo, Mr. Troup, Mr. Cave, Mr. Lutyens, Mr. Detmar Blow, and many members of the Art Workers' Guild, whose accession had been of the utmost importance to the Institute. With Mr. Mervyn Macartney he produced a work on the Later Renaissance which had had a great influence in our day. He passed, in good health, quietly and swiftly away. By his death the Institute had lost a friend of noble and sweet character.

The resolution was then put to the meeting and carried silently, members rising from their seats.

Mr. Belcher, it may be added, was a member of the committee of architects that, under the chairmanship of the late Mr. Norman Shaw, formerly edited "The Architectural Review." Mr. Belcher frequently acted as chairman of the committee. It was he, too, that designed the admirable cover which has distinguished the "Review."

ARCHITECTURE IN THE EIGHTEENTH CENTURY.*

BY A. E. RICHARDSON.

CONSIDERED from an architectural standpoint, the term "Eighteenth Century" covers a far wider period than the strict chronological meaning implies. Its beginnings are discernible at the time of the Restoration, while its extension continues to the period of the Regency; it takes forty years from the seventeenth and gives twenty to the nineteenth century. Practically the whole of the work of the Wren school was accomplished at the termination of the reign of Queen Anne; in fact, before the advent of George I. The influence of the great architect was already overshadowed by the machinations of others.

In passing from the study of what must be considered the second phase of the neo-Classic movement to that which became the vogue during the early years of the reign of George I., we become conscious of a marked divergence in the style of the architects of the two periods. To appreciate this fact more clearly it is necessary to mention the names of those who in their imitation of Wren's manner extended his influence over the contemporary vernacular architecture. His actual followers were few; but it is imperative to remember that the academic diction of the ensuing phase owes its existence to the enormous activity of Wren, and this in spite of the temporary reaction in taste which for a time prompted a return to the style of Inigo Jones.

Wren's Contemporaries and Successors.

While Wren was gaining mastery in architecture, other architects came into the arena. They must be dealt with briefly. The first is Edward Jerman, who rebuilt Gresham's Royal Exchange after the Fire of 1666; next in order is Captain Winde, or Wynne (a pupil of Gerbier), who designed Powis House, now Newcastle House, Lincoln's Inn Fields, Buckingham House, St. James's Park (the nucleus of Buckingham Palace), and other works. Then follows Henry Bell, twice Mayor of King's Lynn, a talented provincial architect who built the Exchange or Customs House and other buildings at Lynn. William Talman, the next in order, was a rival of Wren's for a considerable time, and especially so during the building of Hampton Court Palace, where he acted as comptroller of the works in 1694. Talman in 1681 designed Chatsworth for the first Duke of Devonshire, but many additions have since been made to this building.

Among Wren's contemporaries Vanbrugh stands the most conspicuous figure. His achievements as a dramatist alone entitle him to high recognition. No man who has been satirised by Swift and praised by Reynolds could have much chance of being forgotten, but the man who was architect to three such structures as Castle Howard, Yorkshire, Blenheim Palace, Woodstock, and Seaton Delaval needs no other monument. In addition to these buildings more than thirty other structures are attributed to him. The erection of Blenheim Palace gave Vanbrugh the great opportunity of his life; his daring originality evolved a plan dissimilar from anything then in existence, and one which, despite its inconvenient arrangement of domestic offices, is essen-

tially monumental. Vanbrugh's study of academic planning apparently obscured his vision regarding a reticent silhouette for elevations; for the latter he approached his subject in the spirit of a painter of stage scenery and gave preference in his compositions to a gigantic vertical element which terminated in a series of meaningless and unnecessary features. Moreover, he introduced the architectural order on such a gigantic scale as to overpower the finer qualities of his designs. There are several original drawings in the Soane Collection dealing with the design of Blenheim which have been attributed to Vanbrugh; and a contemporary drawing showing the arrangement of the King's Theatre in the Haymarket, which building was one of his theatrical ventures. Vanbrugh's work marks the chief divergence from Wren's manner, but there is a further difference in the work of Nicholas Hawksmoor.

The Decline of the Wren Tradition.

Hawksmoor, at the age of eighteen, became domestic clerk (practically a pupil) to Sir Christopher Wren and was afterwards employed by him in the capacity of clerk of works at Winchester, Chelsea, Greenwich, and Kensington. Under Vanbrugh he acted as assistant surveyor during the erection of Castle Howard and Blenheim Palace. He also prepared a plan for the improvement of a portion of Cambridge in 1712. Hawksmoor's training under Wren and more than passing acquaintance with Vanbrugh's ideas led him to attempt a reconciliation of both systems for his own work. His opportunity for independent practice came when Queen Anne's Act for the building of fifty churches was passed in 1708. In 1716 Hawksmoor became one of the surveyors to the Commissioners. The following churches are among his chief works: St. Anne's, Limehouse; St. George's-in-the-East; St. Mary, Woolwich; St. George's, Bloomsbury; and Christ Church, Spitalfields. The last design is perhaps one of his best plan examples, but his finest work is St. George's, Bloomsbury. Hawksmoor, as Wren's pupil, was thoroughly conversant with the master's ideas, and perhaps through this agency the origin of the steeple of St. George's, Bloomsbury, can be traced. In the composition of this church Hawksmoor followed Wren's precedent in attaching the tower to the side of the church rather than allowing it to straddle the pedimental portico, a course which Gibbs and others pursued. In the design of the steeple Hawksmoor was inspired by Wren's attempt to restore from Pliny's description the Mausoleum of Halicarnassus; and in consequence the building, apart from its successful composition, is a conspicuous and early example showing skillful adaptation of an antique motif.

The work of John James of Greenwich presents about a parallel case to that of Hawksmoor. He designed the Church of St. George, Hanover Square, between the years 1713-24. The portico is one of the noblest in London. Neither Hawksmoor nor Jones is entitled to the credit of having originated the portico treatment, because Inigo Jones's portico at Old St. Paul's is the prototype, without taking into account that of the Church of St. Paul, Covent Garden. James designed St. Mary's Church at Twickenham and built a new

steeple to St. Alphege at Greenwich, the church being Hawksmoor's. James was also responsible for spreading the doctrine of sound proportion, and in 1708 he published a translation of Perrault's treatise of the five orders.

All the foregoing architects owed a debt to Sir Christopher Wren, whose genius stimulated their own efforts; the general desire for a time being in the direction of even greater originality than that displayed by the master, and in the case of Vanbrugh it was carried to excess. The influence of French architecture was also in the ascendant until the reaction took place in favour of a return to the principles of the school of Inigo Jones. The whole trend of events, however, was gradually shaping towards the formation of an academic school, one which observed Palladian principles and at the same time held the remains of Roman architecture to be the true standard of taste.

Growth of the Palladian Movement.

From the year 1700 it became a settled conviction that the fashion of the "Grand Tour," undertaken through the Continental countries, and more particularly France and Italy, provided the necessary finish to the refined training of a gentleman. Noblemen and antiquaries, patrons and artists, flocked to Rome, which city became the meeting place for the English travellers, who soon found the chief members of that international society which foregathered. Purchases of pictures and antiquities were continually made, the ruins of ancient buildings were examined and measured, all with a view to exciting a spirit of emulation among English artists. The treasures thus collected were brought back to England to enrich many town and country houses, and in some cases the acquisition of such objects of art promoted a desire for new mansions in which to display their beauties. If the age of Wren represents a period during which the building of public and ecclesiastical structures almost wholly occupied attention, the succeeding period must be known as the age of private palace building.

Among the travellers who visited Italy at the beginning of the century were Sir Andrew Fontaine, James Gibbs, and William Kent. Gibbs was in Rome as early as the year 1700, where he studied for several years under Garroli, a sculptor and architect, spending altogether ten years in Italy diligently studying the buildings. Kent, we learn, left for Rome in the year 1710 for the same purpose. The accession of George I. to the throne coincided with the age of Classic dilettantism. That monarch's Court of German retainers had but little in common with the artistic class of the cultured English nobility who made Rome their academy, patronised artists, and posed as directors of taste. In fact, the sole ambition of the English travellers at that time appears to have been guided towards a thorough knowledge of the antiquities of Rome; and to meet the demand an accurate guide to the works of art in Italy was published in 1722. Winckelmann, referring to this volume many years afterwards, testified to its accuracy.

The Burlington Influence.

Foremost among the amateurs, who really pursued a study of architecture for its own sake, is the name of Richard Boyle, third Earl of Burlington, who first

* The third of a series of lectures on "The Work of the English Architects of the Eighteenth Century and the neo-Classic School of the Nineteenth Century," now being given on Thursday evenings at University College, Gower Street.

visited Rome in 1716. Burlington must not be considered as an architect; his relationship to the architect of his day is much the same as Evelyn's to the architects of the Restoration. Burlington's immediate influence was extended to a small circle of professional men, including Colin Campbell, Giacomo Leoni (an Italian brought to England by Burlington for the purpose of superintending the publication of an edition of Palladio which appeared in 1707) and William Kent. Burlington, in his assumed position of arbiter of taste probably selected certain Palladian motifs for his architects to work upon, and with this his actual direction in the design ceased.

Much censure has been expressed for the works of the group of architects held together by the patronage of this noble amateur. Contempt has been poured on the taste which reverted to pure Italian models, and applied a rigid system of Classic architecture to domestic problems. An important factor, however, regarding this extraordinary development is apt to be overlooked. Few public buildings, other than churches, were at the period in course of erection; therefore the whole architectural talent of the country was directed to the building of mansions, and the desire to achieve academic distinction outweighed the cult of simplicity. By the year 1735 the movement in favour of blending Palladian motifs with correct Roman detail was assured. It received further impetus at the hands of Kent. Leoni also brought to bear on certain of his buildings his knowledge of Roman detail; but it was left for Richard Cassells, an architect who practised in Ireland, to produce the first public structure representative of this phase, namely, the "Parliament House in Dublin" built between the years 1730-39.

In the year 1750 Robert Wood, called "Palmyra Wood," set out to travel through Asia Minor and Syria, and on his return in 1753 published "Ruins of Palmyra," an important work, followed by "Ruins of Balbec," in 1757. Robert Adam's "Ruins of the Palace of the Emperor Diocletian at Spalatro" was published seven years later. But in 1762 Stuart and Revett's volume describing the antiquities of Athens appeared and caused a stir in the architectural world. This is sufficient evidence of the change towards further purity of taste.

The Society of Dilettanti.

Another point must here be considered; namely, the formation of the Society of the Dilettanti in 1734, which resulted from the travels of such noblemen as Lord Burlington, Thomas Coke (afterwards Earl of Leicester) and other cultured persons. Henceforth a society existed pledged to promote research and to encourage artists in the systematic study of the ruins of a past civilisation. At first membership of the society was restricted almost entirely to the aristocratic amateur, but with the increase of commercial fortunes the merchant princes entered the lists, and towards the close of the century many architects and artists became members.

Through the agency of the Society of the Dilettanti, the desire was furthered for the founding of a national school of art, which finally led to the foundation of the Royal Academy, in the golden age when Reynolds and Gainsborough painted and Chambers flourished as an architect.

In a critical study of the architects and architecture of the early part of the eighteenth century an all-important fact must constantly be kept in mind; that is, the gradual formation of an academic

standard by which the exponents gauged the value and merit of their respective productions. Wren was a man of such sanity and strength of mind as to form during his age an academy to himself. Vanburgh was obsessed with such an undue importance of the merit of his own productions that he falls between the two periods. The same same remark applies to Hawksmoor, the follower of Wren and Vanburgh. Both Archer and James cannot be classed as members of a purely academic school. Neither can we accord that honour to Ripley, whose design for the Admiralty at Whitehall is both clumsy and insipid. But in the more polished style practised by Colin Campbell, Giacomo Leoni and William Kent, and encouraged by Burlington, is seen an attempt to conform to academic laws.

Naturalistic Ornament Superseded.

The free and naturalistic ornamentation associated with the work of Wren gives place to more reticent architectural detail. The unwieldy keystone and stone block motif adopted by the church-builders of Queen Anne's time gradually disappears. Many imperfections, however, are still discernable, such as broken pediments, redundant sculptural features, etc. But the greatest advance is apparent in the improved system of simplified architectural composition. The work of this period has been described as being cold and colourless, too correct in proportion and pedantic in character. Such remarks can only be accounted for by a superficial study of the buildings. No allowance is made for the advance in technique, in the knowledge of the antique, or the greater polish of the age. Campbell's design for Wanstead Park in 1720 is a highly creditable achievement for which we can almost forgive his sneers at Wren. Houghton Hall, Norfolk, is another of his works; but Ripley spoiled the composition by introducing the cupolettes at each of the angles. Moor Park, Hertfordshire, 1720, by Leoni, is another dignified design. Of the works associated with the name of William Kent, Holkham, Norfolk, must rank as the finest as well as the most original of his compositions. Kent was back in England from Italy in 1719 and was given a room in Lord Burlington's house in that year; it is more than probable that he prepared the designs for the Villa at Chiswick, the Westminster Dormitory, and the Assembly Rooms at York, all of which have been attributed to Burlington. Kent, among other works, built Devonshire House, Piccadilly, 1734, the Horse Guards, Whitehall, begun in 1792, and the façade to the Treasury Buildings facing St. James's Park.

The tendency of the time, as previously mentioned, was directed to Rome, but the works of Palladio provided the more constant model on which to base the style. Hence the meaning of the term Roman Palladium. The architecture was classical in its tone, its composition was borrowed from Italy, but the respect for order and sound arrangement was guided and tempered by an unequalled surety of taste.

A Handy List of Periodicals.

A very useful "List of Annual Subscriptions to English, Colonial, and Foreign Newspapers, Magazines, etc.," now in its twenty-fifth edition, is issued by Messrs. William Dawson and Sons, Ltd., 121, Cannon Street, E.C. The lists are classified according to countries and subjects, and include technical and professional as well as general periodicals.

ENQUIRIES ANSWERED.

Books on Reinforced Concrete.

STUDENT writes: "Would you kindly recommend a few practical text-books on reinforced concrete illustrating ordinary practice in strict accordance with the R.I.B.A. Report, L.C.C. Regulations and the London Building Act?"

—For general principles the best book is Marsh and Dunn's "Manual of Reinforced Concrete Construction" (A. Constable and Co., Ltd., 10, Orange-street, Leicester-square; 7s. 6d. net). This was published in 1908. More recent books are M. T. Cantell's "Reinforced Concrete Construction," in 2 vols., Elementary and Advanced (Spon, 57, Haymarket). The various systems are described and illustrated in "Specification," 3s. 6d., from this office. The new regulations of the L.C.C. are still in draft form and have, of course, not yet been dealt with in text-books.

Dampness Below Floors.

CANADA writes: "Kindly give a remedy for dampness under floors. The houses in which the trouble has occurred have no cellars, the ground being 2 ft. 6 in. below the floor level."

—It is not quite clear from the particulars given whether the flooring has been affected by wet—or dry rot, but in either case a layer 4 in. thick of good cement concrete spread over the soil beneath the floor is a most desirable provision and one which is now justly called for under the by-laws in force in most districts. To prevent the possibility of the spores or mycelium of the dry-rot fungus obtaining a hold above the soil, all the timber, brick, or stone work below the floor should be treated with a solution of corrosive sublimate (deadly poison), one ounce to a gallon of water, used hot. If the space is as much as 2 ft. 6 in. it may be possible to do this work without taking up the whole floor. G.

Measurement of Gauged Flat Arches.

AVALON writes: "Kindly give information on the following points:—(1) In giving in bills of quantities gauged flat arches in specially made pressed bricks, is the general method to measure face and soffit and to state the superficial quantity? (2) Might such arches be given run, instead of super, and the depth and soffit stated. (3) Is it usual to make any distinction, whether arches be given super or run, where the face of such arches more than 10 in. deep is bonded?"

—The customary method of measurement is as stated in (1). Failing special circumstances there seems no reason to depart from custom as suggested in (2). It is not usual to mention specifically that arches are bonded on face unless anything in excess of customary usage is intended, when a sketch should be given; but nothing is lost by making descriptions as full as possible.

Wrought Teak in Exposed Situation.

G. A. P. writes: "What is the best treatment for wrought teak exposed to all weathers? Should it be left from the plane; if so, why?"

—There are several varieties of teak, not all of which have the same properties or are equally durable. Teak is imported to British markets from India, Burma, Siam, and the Philippines. There are at least ten varieties of the Indian teak. Under these circumstances and without more definite particulars, only a general

answer can be given to the correspondent's questions.

The lifetime of good-quality teak in the open and unprotected in England may be taken as from 80 to 100 years. In India and China there are records of its perfect durability for upwards of 1,000 years.

If the wood is to be used in balk form, it would be better left as axe trimmed by the exporters; it would need no treatment whatever. If to be used as piles in tidal waterways it would be advisable to sheath in copper or similar metal between the two water lines, as it is here that all timber is vulnerable to attack from marine insects.

If to be used in carpentry or joinery, it would be advisable to plane the exposed surfaces, because if left woolly from the saw, moisture is attracted and held much longer on the rough surface. This softens the outer skin and dissolves out some of the contained gum—apatite—and the sun will then act more readily on the open pores, causing them to shrink, and thus produce surface cracks or shakes, which, however, will not penetrate to any great depth, the appearance rather than the durability being affected thereby.

The only treatment—other than paint for decorative purposes—that would be of service would be liberal brushing with boiled linseed oil. GEO. ELLIS.

Batty Langley's "Ancient Masonry."

ENQUIRER writes: "Kindly tell me the value, etc., of a book called 'Ancient Masonry,' by B. Langley."

—Most copies of Batty Langley's "Ancient Masonry" are very imperfect, and not worth more than 30s. If the copy

in question is absolutely perfect, and the binding sound, it might be worth from £3 to £4.

Book on Timber.

FRA writes: "Please recommend a book dealing with the selection and buying of timber."

—"Building Timbers and Architects' Specifications." By J. Davies. Haworth and Co., Ltd., 84, Leadenhall-street, E.C.

Open-Air School.

F. P. writes: "Can you give me any information as to the requirements of an open-air school for twenty-five to thirty scholars?"

—The open-air school is at present in too embryonic a stage for the requirements to have crystallised into exactitude. Querist should consult the last annual report of Sir George Newman, Medical Officer to the Board of Education, where the matter is dealt with at some length. This may be obtained from Wyman and Sons, Fetter Lane, or through any bookseller. A plan of a large open-air school at Thackley appeared in the "R.I.B.A. Journal," Vol. XX., No. 19, and in this number and the preceding one (price 1s. each, at 9, Conduit Street) there is much up-to-date information on school building.

Georgian Houses.

T. L. writes: "I want to study some Georgian houses easy of access from London. Kindly recommend a good district."

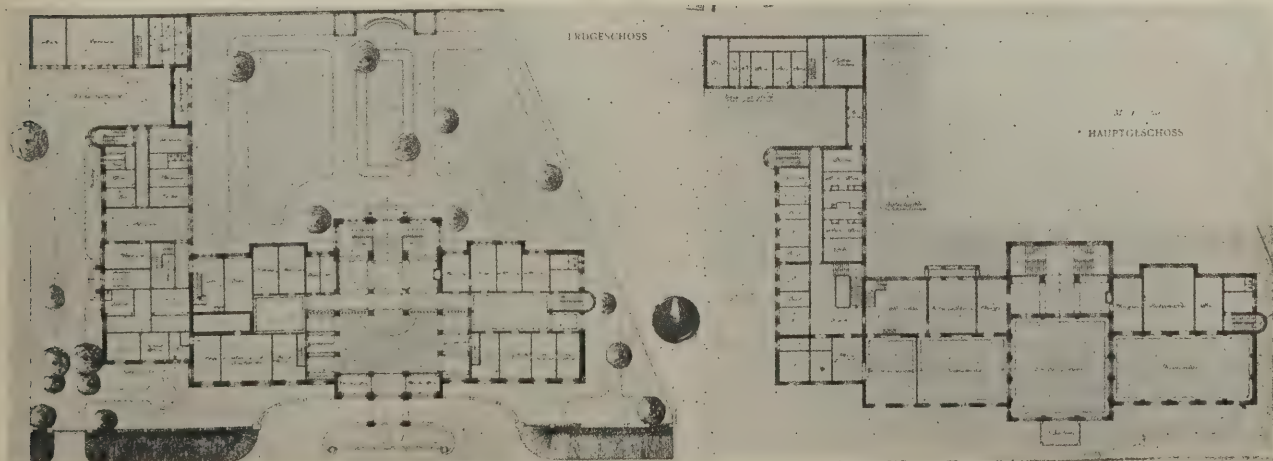
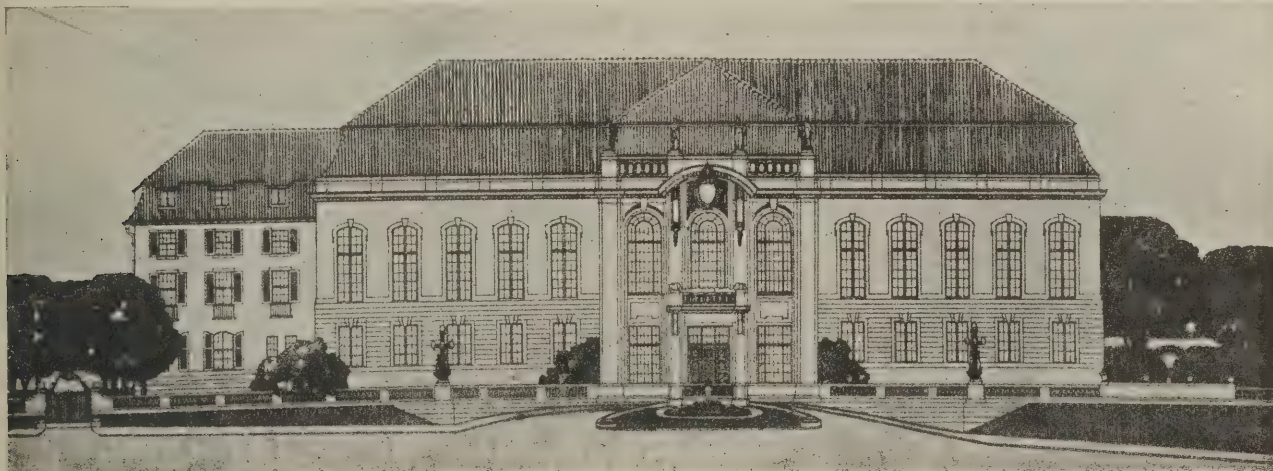
—Georgian work abounds both in and around the metropolis. But the Richmond district offers an exceptional number of good examples, and we would therefore recommend this.

THE GERMAN EMBASSY COMPETITION, WASHINGTON.

In a recent issue "Ubique" commented under "Here and There" upon the competition for a proposed new German Embassy at Washington, and drew attention to the extraordinary but characteristic action of the Kaiser in over-ruling the assessors' award and giving the commission to the Court architect, Von Ihne. The facts are as follows: A competition for the building was instituted among German architects, and no fewer than 272 designs were submitted. These were assessed by a competent jury (which included the Foreign Secretary and the leading architects of the Empire) and the design by Bruno Moehring (reproduced below) was selected. This was submitted for approval to the Kaiser, who, however, rejected it on the ground that it was "not suited to Washington."

The unfairness of this proceeding is so obvious that comment would be superfluous; but, as "Ubique" suggested, it would have saved a lot of trouble if the Kaiser had appointed himself sole assessor from the very beginning.

The design is characteristically German, and certainly appears to justify in some degree the Kaiser's criticism of unsuitability to Washington, if this is intended to mean that it fails to conform to the general character of present-day American architecture. But that it should do so is by no means certain. Its outward character would at least give an indication of nationality that no building on American lines could possibly convey.



NEW GERMAN EMBASSY, WASHINGTON: DESIGN PLACED FIRST. BRUNO MOEHRING, ARCHITECT.

PROJECTED NEW WORKS.

Public Baths, Blackpool.

Public baths and washhouses, to cost about £10,000, are to be built in one of the most largely populated districts of Blackpool.

Poorhouse Reconstruction, Dumbarton.

Dumbarton House Committee have approved the reconstruction of the main block of the poorhouse at an estimated cost of £6,719.

Picture Palace, Darfield, Barnsley.

On the application of Mr. Jonathan Ball, Darfield U.D.C. have approved the plan of a new picture palace, to be erected in Cross Keys Yard.

Football Stands, Glasgow.

Plans have been passed for the erection of grand stands in the grounds of the Queen's Park Football Club, Glasgow, at a cost of over £50,000.

Buildings, Bristol University.

Messrs. George and Henry Wills have given £150,000 to the Bristol University for the erection of a block of buildings as a memorial to their late father.

Church, Glasgow.

Plans have been passed for the erection of a portion of a church in Newlands, Glasgow, for the Merrylee Church trustees. Mr. P. McGregor Chalmers is the architect.

County Offices, Barrow.

A proposal for the erection of new county offices at Barrow at an estimated cost of £12,000 is now under the consideration of the Worcestershire Standing Joint Committee.

Municipal Housing, Colwyn Bay.

Colwyn Bay U.D.C. are considering a scheme for the provision of houses for the working classes. The intention is to start with a small number, at most 88, at a total cost of £18,700.

Bridge, Yarmouth.

Yarmouth Town Council have adopted a scheme for a new bridge across the harbour, to cost £80,000. It will have an opening span of 90 ft., a 40 ft. roadway, with 10 ft. paths on either side.

Torpedo Factory, Greenock.

Further important extensions at the Royal Naval Torpedo Factory, Greenock, are contemplated, specifications for the new buildings having been issued. The extensions will cost about £300,000.

Bridge Scheme, Putney.

It is proposed to widen the bridge which carries the road over the South-Western Railway line at Putney High Street. The estimated cost is £6,000, towards which the railway company have offered £875.

Church, Westbourne.

The provision is contemplated of a permanent church for Christ Church, Westbourne (Bournemouth) at a cost, irrespective of incidental expenses, of £5,300. A site has been secured in the Alumhurst Road.

Aircraft Factory, Selby.

Messrs. Armstrong, Whitworth, and Co. have bought 900 acres of agricultural land in the heart of the plain of York, at Barlow, and upon this spacious site will erect a very extensive set of buildings in which to develop the manufacture of flying machinery which is now carried on by them at Elswick.

Sanatorium, Strathaven.

The Councils of Hamilton, Wishaw, Rutherglen, and Motherwell have pur-

chased the house and estate known as Muirburn, at Strathaven, and propose to erect thereon a sanatorium at a cost of £30,000.

School, Sunderland.

Sunderland Education Committee have decided to recommend the Town Council to purchase a site of eleven acres on the Low Barnes Estate, for the erection of a Bede boys' school, at an estimated cost of £10,959.

Hospital, Saffron Walden.

A Local Government Board enquiry has been held at Saffron Walden into the application of the Joint Hospital Board for sanction to a loan of £2,355, to be devoted to the erection of a new infectious diseases hospital.

Hospital Enlargement, Bucknall.

It is proposed, to enlarge Bucknall Hospital at a cost of £7,593. The Stoke-on-Trent and Stoke Rural Joint Hospital Board have made application to the L.G.B. for permission to borrow that sum of money.

Grain Silos, Glasgow.

It is proposed to erect new grain silos and to make additions and alterations to Springfield Quay, for Messrs. the Riverside Milling Co., Ltd., Glasgow. Messrs. Home, Morton, Kerr, and Gibson are the architects.

Improvements, Spitalfields Market.

Stepney Borough Council have approved an agreement with respect to a scheme of improvements to be carried out by the Corporation in the area of Spitalfields Market at an estimated cost of about one million sterling.

Filters, Coatbridge.

For the purpose of erecting filters for sewage disposal works, at a cost of £40,000, the Coatbridge Town Council have acquired twenty-nine acres of ground on Drumpellier Estate at Luggie Glen, on the Glasgow Road.

Dwellings, etc., Lanark.

Lanark County Council have passed plans for the erection of workmen's dwellings at Raploch, Larkhall.

The estimated cost of the new water supply which it is proposed to proceed with at the Camps is £430,000.

Dock Improvement Scheme, South Shields.

South Shields Corporation have been approached by the Middle Docks and Engineering Company, Ltd., with a view to the purchase of a portion of land on the river front at the Mill Dam for the extension of their undertaking.

Picture Palaces, Dumbarton.

Plans have been passed by the Dumbarton Dean of Guild Court for the erection of a theatre and picture house in College Street and of another picture house in High Street, Messrs. McKellan and Gunn, Glasgow, are the architects for the latter.

Bridge, Glasgow.

The Clyde Navigation Trustees have approved the proposal put forward by a sub-committee of the Glasgow Corporation to build a fixed bridge over the Clyde to the west of the existing Glasgow Bridge. The new bridge, which is designed to relieve the congestion of cross river traffic, will run from Oswald Street on the north to Commerce Street on the south side of the river.

Higher Grade School, Glasgow.

Eastwood Parish School Board propose to purchase five acres of land adjoining Shawlands Academy, Glasgow, and to

erect thereon a new higher grade school to accommodate 600 pupils. Competitive designs will be invited from twelve selected architects.

Housing Scheme, Eastbourne.

The Duke of Devonshire has provided sixteen acres of ground as a site for the erection of 100 houses. It is expressly stipulated that half the dwellings shall be at weekly rentals of 10s. or 10s. 6d. The houses are to be semi-detached and will be about ten to the acre.

Boulevard Scheme, Glasgow.

Representatives of the city of Glasgow, the county of Dumbartonshire, and the burgh of Clydebank have agreed provisionally to a scheme for the construction of a new road or boulevard from the west end of the city to Bowling. The road will be at least 100 ft. in width, about 6½ miles in length, and will pass through a district not yet opened up by roadways.

Piccadilly to be Widened.

A favourable opportunity is now afforded for the completion of the widening of Piccadilly between St. James's Street and Green Park by the setting back of the premises numbered 157 to 160 on the eastern corner of Arlington Street. The freehold of the property in question, with that of Nos. 2 and 3, Arlington Street, is in the hands of one individual, and the L.C.C. is recommended by the Improvements Committee to seek the necessary authority for the execution of the improvement. It is understood that the Westminster City Council will be recommended to contribute towards the cost.

London.

The L.C.C. have consented to the erection of the following works:

Hammersmith.—A studio building upon a site on the eastern side of Lime Grove, Hammersmith, on the application of Messrs. Moscrop, Young and Glanfield, on behalf of the Gaumont Company.

Regent Street.—Three iron and glass shelters at an hotel building to abut upon Glasshouse Street, Air Street, Brewer Street, and Sherwood Street, Westminster, on the application of Mr. H. Tanner.

Haymarket.—An oriel window at 30, Haymarket, on the application of Mr. P. Todd, on behalf of Spiers and Son, Ltd.

Wandsworth.—Re-erection of the White Lion public house, Summers Town and Wimbledon Road, Wandsworth, on the application of Mr. N. Parr.

Kennington.—A block of buildings upon a site on the south-western side of Chester Street, Kennington, on the application of Mr. G. Bartlett, on behalf of the Duchy of Cornwall.

Tooting.—Three houses on the northern side of Birchwood Road, Tooting, on the application of Mr. R. C. Fry.

Balham.—An addition to an electricity sub-station at the corner of Yukon Road and Lynn Street, Balham, on the application of Messrs. Jenkinson, Brinsley and Jenkinson.

Strand.—A wall on the north-western side of 9, Carnaby Street, St. James's, between such building and the St. James and Pall Mall Co.'s generating station at the basement level, on the application of Mr. C. S. Peach, on behalf of the St. James and Pall Mall Electric Light Co., Ltd.

Islington.—School buildings, Sebborn Street and Sable Street, Islington.

SPECIAL LEGAL REPORTS.

Building Contract : Change of Site : Judgment.

Gough v. The Bournemouth Corporation.
November 18th. Official Referee's Court. Before Mr. Muir-Mackenzie.

Mr. Muir-Mackenzie, the Official Referee, gave judgment in the action of *Gough v. the Bournemouth Corporation*. It was the case in which the plaintiff, Mr. Henry Gough, a builder and contractor, formerly trading as J. and M. Patrick, brought the action by his brother and next friend, Mr. Frank Gough. (See our issue of November 12th, p. 454.)

Generally, the Official Referee found in favour of the defendants, the Bournemouth Corporation.

Mr. Muir-Mackenzie, delivering judgment, said that the Corporation were bound by no other contract than the sealed contract. Consequently he had no alternative than to decide, however hard it might be on the plaintiff, that the defendant Corporation had not committed any breach of any obligation regarding the question of the site, and he therefore had to decide against the claim for damages.

Regarding the claim for the balance alleged to be due under the contract, the Referee said that there was a stipulation to the effect that no money was to be considered to be due until the engineer had given his final certificate. He could not go behind the terms of the contract providing that the engineer's certificate should be final. That governed the question of liability. Therefore the plaintiff could not recover the balance he claimed. He, however, gave judgment for the plaintiff for £7 2s. 5d. on a certain issue, without costs, the defendants to have the costs of the issue of the claim on the points on which they had succeeded. There would be judgment for the plaintiff on the counterclaim, without any costs attributable thereto.

Building Contract : Arbitration : Powers of Arbitrator.

Trollope and Colls, Ltd., v. Singer.
November 19th. King's Bench Division. Before Justices Bray and Lush.

This was a motion by the defendant to set aside an award in the action of *Trollope and Sons, Ltd., and Colls and Son, Ltd., v. M. G. Singer*, or, in the alternative, to refer it back to the arbitrator.

Mr. Sankey, K.C., for the appellants, said that the grounds upon which the appeal was made were that the arbitrator had acted in excess of his jurisdiction and that he was in error in giving his award. The plaintiffs entered into a contract with Mr. Singer to carry out certain work at his country seat, Norman's Court, Salisbury, for £7,780. There were two contracts—one for the main building and one for the kitchens—and upon the architect's certificate the time for completion was extended. The delay, which the builders said was occasioned in supplying plans, etc., was the subject of a claim for damages which went to arbitration. The arbitrator had awarded a lump sum of £1,318 16s. as damage sustained, and it was obvious that he had taken into consideration the personal interference of the employer. The claim was for £1,400 odd, and the amount given was £1,300 odd.

Mr. Justice Lush said that it did appear that the arbitrator had taken into account the personal interference of Mr. Singer.

Mr. Sankey said that he had no right to do that.

Mr. Justice Bray said that the arbitrator was entitled to look at the acts of the employer upon the question of penalties.

Mr. Sankey said that damages had been given for the whole of twenty-nine weeks. The contract ought to have been completed on August 9th, whereas it was not completed until fifteen weeks afterwards. What he had done was to lump together the damages for the kitchen and the main contract, and therefore he (counsel) contended the award could not stand.

Mr. Justice Bray said that the appellant was not entitled to have the award set aside because the arbitrator had gone wrong in his law, but they might be entitled to a special case.

Mr. Sankey contended that it should be remitted or set aside, because the arbitrator must have included in the damages the main contract as well as the kitchen contract.

Mr. Justice Lush asked whether it was ever said that damages were claimed for the interference of Mr. Singer.

Mr. Sankey did not recollect that such a claim had been made. He explained to the arbitrator that the reason why he did not call Mr. Singer was because the only allegation in regard to interference was in respect of the counterclaim. He submitted that in any event the case ought to be remitted for the arbitrator to find out the sums of which the total was made up.

Mr. Justice Bray: It might be well that it should be sent back for that purpose, and then a final judgment could be given.

Mr. Sankey: There is no finality about the award, and it is therefore bad.

Mr. Hudson, K.C., for the respondent, contended that the arbitrator had not found any personal interference by Mr. Singer. His case was that from the start there had been delay in supplying documents and instructions. The arbitrator could give damages for delay caused by the interference with the work by the electric lighting and hot-water engineers.

After some further arguments,

Mr. Justice Bray said the Court were of opinion that the arbitrator had no jurisdiction to award damages for matters which were not included in the notice. They would adjourn the case in order that it might go in the special paper and that they might get the directions of the judge as to what items should be allowed. When that had been done the Court would direct the arbitrator as to which items he ought not to allow.

The case then stood adjourned for a fortnight.

Building Contract : Arbitration : Claim for Goods.

Gilford v. Capon.

November 21st. King's Bench Division. Before Justices Bray and Lush.

This was a motion by the plaintiff to set aside an arbitrator's order in the case of *Gilford v. Capon*.

Mr. Palmer, appearing in support of the motion, said that the dispute arose out of a building contract between Mr. Gilford and the respondent, Mr. Capon, who is a builder, for the erection of a house at Purley for £975. The contract was entered into in December. Disputes arose as to the execution of the work, which resulted in certain matters being submitted to arbitration on January 11th last. Mr. Scott, an architect, was selected as arbitrator, and his report was issued on the 28th of that month. The notice of motion to set aside the award on various grounds was given on February 18th on behalf of Mr. Gilford. An arrangement had been made between the parties under which Mr. Gilford guar-

anteed payment for certain goods supplied to the builders, and it was said that a separate adjudication had not been made by the award in reference to those goods, the claim for which amounted to £224. The foundation of the motion was that the award was bad on the face of it. There was no claim put forward by the builder in respect to the guarantee and the arbitrator made no award in regard to it.

After reading the arbitrator's award, counsel said that he (the arbitrator) was wrong in saying that Mr. Gilford made no claim.

Mr. Justice Bray said that the Court could not entertain that, as it was purely a matter of fact, and at the same time it was immaterial.

Mr. Justice Bray said that the motion failed and must be dismissed, and he congratulated the arbitrator upon the clearness of the award and of his answers to the questions submitted to him.

Mr. Justice Lush agreed.

Discrepancies between Schedule and Execution.

Forrest v. Scottish County Investment Co., Ltd.

November 12th. Court of Session, Glasgow. Before Lord Hunter.

Judgment was given in an action by *Elphinstone Forrest*, builder and contractor, 12, Dixon Street, Glasgow, against the *Scottish County Investment Co., Ltd.*, 155, St. Vincent Street, Glasgow, for £633 16s., the balance of the contract price of £3,495 for the construction of four tenements in Garrioch Road, North Kelvinside. The defenders, founding upon alleged discrepancies between the schedule work and the executed work, maintained that the pursuer was not entitled to sue for the price under the contract, and separatim that as the cost of completing the work in compliance with the contract fell to be deducted from the contract price and was in excess of the sum claimed, they ought to be assolized.

The Lord Ordinary gave decree for the sum sued for with expenses, under deduction of £5 claimed by the defenders. Reliance was placed upon two decisions of the Court of Session. It was held in both cases that approval of the architect afforded no justification for a deviation from the contract not sanctioned by the building owner; but the deviations founded upon were treated as material and not merely in detail. His Lordship could not think that either of these cases was an authority for the proposition that an architect who understood construction and who was acting for a proprietor of ground who did not understand construction, could not alter any of the innumerable details of a schedule of work, which was primarily intended as a basis for pricing, without formally applying to his principal. At all events, the builder was entitled to assume, as appeared from the evidence to be customary, that the architect had authority to give instructions as regarded details of construction. Under the contract the work was to be completed in a tradesmanlike manner to the entire satisfaction of the proprietors and architect or any person appointed to inspect the work, and power was reserved to increase, lessen, or omit any part of the work. The only person in the present case appointed to inspect the work for the defenders was their architect, Mr. Alexander Adam, to whom the pursuer looked for directions on details of the contract.

COMPETITIONS.

Rome Scholarship in Decorative Painting.

The above scholarship has been awarded to Mr. Colin Gill, of Cudham, Kent. Mr. Gill, who is twenty-one years of age, began his art studies at St. Dunstan's College, Catford. In 1908 he became a pupil of Mr. W. H. Caffyn, entering the Slade School in 1910, where (in 1911) he won the Slade Scholarship, value £70, and (in 1912) the British Institution Scholarship, value £100.

Council School, Hindley.

Mr. Herbert Wade, of Blackpool, has secured the award in the competition for a new Council school, to be erected at Platt Bridge.

Municipal Offices, Dublin.

On the recommendation of the assessor, Mr. Albert E. Murray, Messrs. McDonnell and Reid, of Dublin, have been appointed architects for the new municipal buildings to be erected, at an estimated cost of £55,000, in Lord Edward Street.

Victoria Hospital, Burnley.

Competitive designs are to be invited for an extension of the above hospital, to include additional wards, a nurses' home, operating theatre, etc. The work is estimated to cost about £30,000.

King Edward Memorial, Bath.

The amended design submitted in the above competition by Mr. Newbury A. Trent has been accepted. It consists of a medallion of the late monarch on a granite base, with a bronze figure above emblematic of Peace.

Garden Suburb Lay-out, Summit, Manchester.

In the above competition, instituted by Mr. A. G. C. Harvey, M.P., the scheme by Messrs. Butterworth and Duncan, F.R.I.B.A., of Rochdale, has been accepted.

LIST OF COMPETITIONS OPEN.

NOVEMBER 29.—BAND PAVILION, FOLKESTONE.—Folkestone Corporation invite designs for a band pavilion to be erected on the face of the West Cliff, at a cost, including approaches, not exceeding £20,000. Mr. Edwin T. Hall, F.R.I.B.A., will act as assessor. Intending competitors should forward deposit of £1 is. to A. F. Kidson, Town Clerk, Town Clerk's Office, Folkestone, when conditions will be sent.

JANUARY 2.—ROYAL EXCHANGE, MANCHESTER.—The Board of Directors of the Manchester Royal Exchange, Ltd., invite designs for additional new buildings and alterations on the existing Exchange buildings. Mr. James S. Gibson, F.R.I.B.A., will act as assessor. Particulars, instructions, and plans will be forwarded on application to Richard J. Allen, Master, the Manchester Royal Exchange, Ltd., Manchester, accompanied by a cheque for £2 2s.

JANUARY 2.—GOVERNMENT BUILDINGS, OTTAWA, ONTARIO.—Architects are invited to submit sketch designs in a preliminary competition for the erection of departmental and courts buildings. Six will be chosen by the assessors, the authors of which will be invited to take part in a final competition, for which the five unsuccessful competitors shall each receive an honorarium of \$3,000. The competition is limited to British subjects practising in the British Empire. Mr. T. E. Colcutt,

Mr. J. H. G. Russell, and Mr. J. O. Marchand will act as assessors. Conditions for both competitions may be had on application to R. C. Desrochers, Secretary, Department of Public Works, Ottawa, and at the office of the High Commissioner for Canada, 17, Victoria Street, London. (Summary of conditions, p. 326 in our issue of September 24th.)

JANUARY 20.—MASONIC TEMPLE, TORONTO.—Designs are invited for a new Masonic Temple to be erected at Toronto. Prizes of \$750 (£156), \$500 (£104), and \$250 (£52) will be awarded in addition to the first prize, which will be the commission for designing and supervising the erection of the building. The estimated cost is £51,400. Conditions may be inspected at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall Street, E.C.

FEBRUARY 1.—MUNICIPAL TECHNICAL INSTITUTE, COVENTRY.—Designs are invited for a technical institute to be erected, at a cost of £25,000, in Pool Meadow, Coventry. Subject to a satisfactory arrangement, the author of the accepted design will be appointed architect at an inclusive fee of £1,000. The R.I.B.A. and the Society of Architects advise their members that negotiations are being made with a view to the alteration of the conditions, which are unsatisfactory. (Summary of accommodation in our issue for November 5th.)

FEBRUARY 15.—SAVINGS BANK, VERONA.—The Savings Bank of the City of Verona invite designs for a new building to be erected on an area bounded by the Piazza delle Erbe, Via Camera di Commercio, Via Portici, and Via Mazzini. Premiums: (1st) Lire 30,000 (about £1,200) and (2nd) Lire 15,000 (about £600). The President of the Savings Bank and four others, to be appointed by the Council of Administration, will act as assessors. Applications to be addressed to the seat of the Institution, Via Garibaldi No. 1. (Site plan and summary of conditions, p. 221 of our issue for August 27th.)

MARCH 20.—PUBLIC ART GALLERY AND MUSEUM, BELFAST.—Designs are invited for a new public Art Gallery and Museum, to cost not more than £75,000. The author of the accepted design will be appointed architect at the usual rate of commission. Authors of designs placed second, third, and fourth will receive premiums of £100, £75, and £50 respectively. The assessor is Mr. John J. Burnet, LL.D., A.R.S.A. (Site plan and summary of accommodation in our issue for November 19th.)

NO DATE.—NEW OFFICES FOR THE BOARD OF TRADE, ETC., LONDON.—The Commissioners of H.M. Works and Public Buildings invite preliminary sketch designs in competition for new offices for the Board of Trade, etc., to be erected on a site in Whitehall Gardens, London, S.W. From sketch designs submitted the authors of not more than ten designs will be selected to submit designs in a final competition at an honorarium of £300 each. The assessors who were originally appointed were Mr. Reginald Blomfield, M.A. (Oxon.), A.R.A., P.R.I.B.A., Mr. John Belcher, R.A. (since deceased), and Sir Aston Webb, C.V.O., C.B., R.A. Conditions of the competition, which is open to all British subjects, with full particulars of the accommodation required and plan of site, can be obtained on application to the Secretary, H.M. Office of Works, etc., Storey's Gate, London, S.W., and deposit of £1 is. (Site plan and summary in our issue of September 3rd.)

SOCIETIES AND INSTITUTIONS.

ROYAL TECHNICAL COLLEGE ARCHITECTURAL CRAFTSMEN'S SOCIETY, GLASGOW.

At a meeting of the above society, held on Friday, November 21, Mr. T. G. Gil-mour, A.R.I.B.A., presiding, Mr. W. T. Peddie gave a lecture entitled "Electrical Installation for Domestic Purposes." He said the cost per unit had been very considerably reduced in recent years, and electricity was now largely taking the place of gas. The points to be considered were cost of installation, cost of supply, suitability, fire risk and health. As regards installation, there was very little difference compared with gas. Where cost of supply was a matter of consideration, as was generally the case with tenements of the cheaper class, the advantage would be with gas, as the gas would cost less than electricity. But where gas was used the upkeep of interior decoration would be more costly. In point of suitability the advantage was with electricity, which was also better from the health point of view. Mr. Peddie described at some length the nature and fitting-up of tubing wires and other fittings and also the precautions to be taken. In a country house, he said, an engine and dynamo were required, also provision for storing the electricity. Electricity might be used for many domestic purposes other than lighting—such as heating, ventilating, cooking, working washing machine, vacuum cleaner, knife cleaner, coffee grinder, boot cleaner, and other labour-saving devices. The lecture was illustrated by lantern slides kindly lent by Messrs. Siemens Bros., Ltd., and Messrs. Simplex Conduits, Ltd. A large selection of fittings from the same firms was also on view.

LONDON DISTRICT SURVEYORSHIP EXAMINATIONS.

At the last meeting of the R.I.B.A. it was announced that the following gentlemen have passed the examination held by the Institute under Section 140 of the London Building Act, and have been granted certificates of competency to act as district surveyors in London: William Edward Brooks (Associate), John Percival Edwards (Licentiate), Frederic Snowden Hammond (Licentiate), and Hubert Covell Sands (Licentiate).

COMING EVENTS.

Wednesday, November 26.
Manchester Society of Architects.—Mr. Lawrence Weaver on "Small Country Houses of To-day."

Thursday, November 27.
Concrete Institute.—Mr. W. A. Green on "The Differential and Integral Calculi for Structural Engineers," at 7.30 p.m.

Friday, November 28.
University of Manchester.—Professor Beresford Pite on "English Mediaeval Architecture" (fourth lecture), at 7 p.m.

Monday, December 1.
Society of Engineers.—Mr. Eric K. Rideal on "The Corrosion and Rusting of Iron," at 7.30 p.m.

Tuesday, December 2.
Nottingham and Derby Architectural Society.—Exhibition and Criticism of Designs for a Hospital Pavilion for 52 Beds, by Mr. Arthur Marshall, A.R.I.B.A.

THE ARCHITECTS' & BUILDERS' JOURNAL.

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No. 61.



(From Piranesi.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

DECEMBER 3, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 38. No. 986.

London University and Somerset House.

OF the many suggestions for the housing of London University the latest seems to be the likeliest of adoption—the more is the pity. Of the four sites which had been seriously considered—(1) The Imperial Institute, where the University is at present precariously lodged; (2) the site adjoining the British Museum; (3) the Foundling Hospital; and (4) the site adjoining the new London County Hall—it was thought that the ultimate choice would depend on the issue of a trial of strength between the respective advocates of Nos. 2 and 3 on the list. Apparently all rivalries have been composed on the suggestion by the Education Committee of the London County Council that Somerset House shall be the home of the University; for it is recorded that when the Council Committee met in conference the Site and Accommodation Committee of the Senate of the University, no opinion adverse to Somerset House was expressed. But such a weighty matter could not be determined out of hand, and it remains to be seen what view will be taken by the Senate, who are, of course, not pledged by their Site Committee; by the Government, whose consent to the arrangement seems to be too easily assumed to be a matter of course; and by public opinion, which, so far as it has been expressed in the newspapers, seems wholly favourable to the new choice.

There were, however, dissentient voices in the council-chamber when the report of the Higher Education Sub-Committee came up for consideration. Mr. Joyce Thomas recommended the Council not to approve of the Somerset House site. Having been educated in the cellars of King's College, he said, he did not think cellarage was a proper provision for the higher education. He went to the other extreme. He has a vision of a university suburb—of noble buildings in ample meads, where the alumni may cultivate brawn as well as brain, and live heartily and healthily. To be cooped up in Somerset House, whether in the cellars or on the topmost storey, is a horrible condition to contemplate, more suggestive of poultry-cramming than of liberal education, whereof outdoor sports and games are an essential ingredient if manhood is to be duly developed.

We are perfectly satisfied that Mr. Joyce Thomas is in the right of it—that his is the true conception of a fit university scheme for London, and that the Higher Education Sub-Committee have no true vision. Instead of seizing with joy and courage so splendid an opportunity of aggrandising London, and of advancing education, they have attempted to solve the problem by an adroit subterfuge, and are pluming themselves upon the miserable performance. They harp on cheapness and on convenient access as if these were vital matters, whereas neither point is worth a moment's consideration. If London cannot for the moment afford to erect and endow a rationally conceived university, it had better wait a little longer. Ever since 1836 the London idea of a university has scandalised Europe and America, and to take refuge

in so unsuitable a building as Somerset House would merely aggravate the situation. London should be heartily ashamed of so mean a conception of the needs of a university bearing the name of the chief city of the Empire. The one other dissentient voice in the Council said that a more stupid proposal had never been made, and we have no hesitation in expressing our hearty agreement with him. The Higher Education Sub-Committee seem to be utterly incapable of discriminating between a university and a cookery centre, and we can only trust that their inept intrusion in matters that are manifestly too high for them will have no weight with the Senate, whose sense of proportion and perspective, and of what is due to the dignity of the higher education, must surely lead them to a prompt repudiation of the County Council idea of university life. We had understood that it was the aim to establish a real University of London. If that is the object it would be utterly stultified by meek acquiescence in the County Council proposal. If London University is to justify its name, to become something more than a mere examining body or "glorified polytechnic," if it is to take rank with the real Universities in this country and abroad, it must begin by building nobly, courageously, and consistently with its high calling. This can be done, even in London proper; but it can be done much more expediently in the outskirts; for, as we have already hinted, the quality of accessibility was overstressed by the Council, who seem for the occasion to have forgotten their own tramway system, and the "linking-up" of the means of transit of which, when it serves their turn, they are so ready to boast. Within the area of Greater London there are miles upon miles of fields—some of them Crown lands, which are lying idle—and what with these, and what with the modern facilities for cheap and rapid transit, it is quite clear that the alleged difficulty of selecting a site for the University is less real than imaginary.

If it has been found advisable and advantageous to remove several educational institutions from London to the country—St. Paul's School, the Merchant Taylors' School, Christ's Hospital, and some others have not hesitated to take this course, and have in nowise suffered for their temerity—why should not London University profit by the example? "Our young barbarians all at play" were an inspiring sight to Matthew Arnold, who, high educational authority as he was, would surely have protested with all his might against the fatuous idea of converting Somerset House from a stamp-printing factory into a factory for the production of swelled heads and narrow chests. There is yet another way in which occupation of Somerset House by the University of London would be, in Stevenson's phrase, "inimical to life." Complete loss of identity—"mere oblivion"—would surely ensue.

Alternatively, Somerset House would lose its identity. Either loss would be, sentimentally speaking, a calamity in Cockneydom. Nothing that we have said in protest against the proposed misuse of Somerset House is to be construed—or, rather, mis-

construed—into disparagement of the fabric itself, which we cheerfully acknowledge to be in many respects the noblest building in London; and it has many venerable associations as well as some that are disreputable. It stands on the site of the palace—"the first Italian building in London"—designed by John of Padua. Inigo Jones had a hand in adding to the old palace, and he died there in 1652. In the great hall the remains of Oliver Cromwell lay in state. It was an early home of the Royal Academy, to whom George II. granted apartments, and also, it is interesting to recall, it once housed the London University Board. And the present building, of which the first stone was laid in 1776, is not only the finest work of Sir William Chambers, but a unique monument to the particular phase of architectural development which its style represents. Its interior has suffered many vicissitudes, and we do not share the alarm that has been expressed with respect to the results of further drastic changes; but a worse fate would be the moral deterioration it would suffer in being contemptuously regarded as a makeshift university and as a monument to a mean and inglorious misconception of educational ideals. T.

St. Paul's Bridge: New Phase.

AT last the Bridge House Estates Committee of the Corporation of London has resolved to do the right thing about designing the proposed St. Paul's Bridge, although we fear that as yet they are not doing it in quite the right way. British architects are to be invited to send in designs for the architectural treatment of the bridge, and the premiums offered—£300, £200, and £100—are fairly adequate as far as they go, but that is not quite far enough. In a competition of such magnitude—for, from its intrinsic importance, independently of all question of pecuniary rewards, it should engage the attention of nearly all the available architectural talent in the country—it would have been at once more expedient and more just to allot treble the £600 now offered. Then the first three premiums might be allowed to stand as at present, and, in accordance with precedent, the remainder of the money should be distributed equally among a dozen competitors in a preliminary competition. This would of course enhance by £100 each the premiums finally chosen; and it would commensurately increase the success of the competition: not because architects are sordid, but because the men of standing who are expected to compete can only do so at considerable pecuniary sacrifice, for which in fairness they ought to be offered a better prospect of compensation than the bare chance of ultimately finding themselves among the more or less fortunate trio. Although it is not forgotten that St. Paul's Bridge is not to occupy the position that the best architectural opinion would have preferred for it, there is no abatement in the keenness of the desire that the design shall be in itself architecturally creditable to the City; and to that end it is a condition precedent that this important competition shall be re-arranged on more conspicuously equitable lines.

Warrington School Competition.

AFEW weeks ago we took occasion to congratulate the Warrington Education Committee on its decision to institute an open competition for a new school, to cost £14,000. Last week the committee changed what it may be pleased to call its mind, and adopted a motion limiting the competition to architects in Warrington. The shilly-shallying and wobbling of the Warrington Education Committee are of no intrinsic importance, but the line taken by one of the opponents of open competition deserves passing notice. He is reported as saying: "It was not the school, but the master, who made the scholar. Some masters would turn out better scholars, teaching in a

barn, than others who were housed in palaces. Therefore, if the committee had any money to spend, they should spend it on the schoolmaster and not upon the palace." Local architects will hardly feel effusively grateful for the implied compliment on themselves and on architecture. It is a fair inference from the utterances of this authority on education that as a school building can have in itself no educational value, its design is of no consequence, and therefore local architects cannot fail to be equal to the occasion. This view of architecture does not excite our special wonder; it is only too truly typical. It is nevertheless deplorable.

More London Subways.

LONDON'S subways grow in number if not in grace. Those already in existence are utterly destitute of ornament, and the new subway near the Mansion House Station in Cannon Street is as baldly utilitarian as the rest of them. With its 325 ft. of length of tiled subways, 10 ft. wide and 7 ft. high, and its sturdy roof of steel troughing, it is no doubt an excellent piece of engineering work as well as a great public advantage. It will have an appreciable effect in diminishing the number of street accidents whose abnormal prevalence at these traffic-congested cross-roads suggested the outlay of the eleven or twelve thousand pounds which the work has cost as being a humane provision and (considering the value of human lives) a profitable investment. Beautiful enough if useful enough, seems to be the guiding principle of the engineer, but the architect is not so easily satisfied. Certainly, in a street subway there is not much scope for decorative effect; yet such meagre opportunities as offer themselves seem to be almost ostentatiously ignored. At very little extra cost, the fencing of the entrances to subways could be invested with enough artistic merit to make their intrusion agreeable.

The Arterial Road Conference.

AT Caxton Hall, Westminster, on November 24th, Mr. John Burns, M.P., presided at the conference on arterial road communication suggested by Mr. Asquith last July. Mr. Burns's speech, interesting as it was, dealt too largely in broad generalities and in State platitudes to be of much practical value, except perhaps as a stimulus to the further taking of thought for the morrow. In the past there had been a lack of unity, with a result that enormous tracts of London had been covered, roads had been developed, and streets made not quite so well as they should have been if a considered and harmonised idea had prevailed, and so forth. More welcome were his declarations that in his judgment, as in ours, there are too many road authorities, and his hint that town planning and road-work, and perhaps the subsidies, could come better from a central department out of which local authorities now got the sanction for raising loans for road-making; and that the Local Government Board were willing, wherever the necessity was proved, to modify the existing by-laws with regard to minimum and maximum widths of roads. Sir Aston Webb urged the necessity for some final authority in the matter of roads, and was supported in this plea by Sir Alexander Stenning. Mr. Raymond Unwin mentioned a vital point that, in the general zeal for roadmaking, seemed to have been strangely overlooked—that the local conferences must not be exclusively road conferences; they must be also town-planning conferences. This natural union may possibly have been tacitly assumed; but it is unwise to take so much for granted, seeing that the whole trouble has arisen from the drifting apart or forcing asunder of kindred interests and the consequent substitution of conflict for co-operation. We are in hearty agreement with Mr. Raymond Unwin in conceiving that town-planning is of the essence of the great new lay-out of London.

AMERICAN HOSPITAL PLANNING AND CONSTRUCTION.

IN consequence of modern hygienic requirements, the design of hospitals has become a matter of very considerable complexity. The whole range of planning alone has undergone a complete transformation, and many interesting building materials, devices, and arrangements have been introduced to meet the new conditions thus created. To those who are already familiar with English practice in hospital design and equipment the following details of modern American methods will afford a comparison which should be of considerable interest and value.

The Site.

On account of the relatively high price of land, city hospitals are frequently built on the masse or block plan. The difficulty with this is to arrange the building in such a manner that every room will receive direct sun-rays during some time of the day. This is practically an impossibility, and it is therefore desirable to plan so that the wards and rooms of the sick will receive as much sunlight as possible. The auxiliary rooms, such as pantries, chart rooms, and linen rooms, are then placed on the north side of the building. Many of the hospitals in which the best work has been done in America are built on such plans; but where a semi-block or semi-pavilion plan is possible it is usually regarded as more desirable. The appearance of such a plan is that of a number of barrow strips, sometimes joined solidly and sometimes by cut-offs or necks. On it all the wards can usually be arranged to receive direct sun-rays during some hours of the day, and only so much of the northerly side of the building is arranged into patients' living space as may be absolutely necessary, or for such as eye wards, where sunlight is not so necessary.

Planning the Hospital.

A unit in proportion to the size of a proposed hospital is designed, and one of these is incorporated in the whole plan for each department, such as male

medical, female medical, male surgical, female surgical, maternity, private rooms, etc., each one as far as possible self-contained so as to keep the nurse close to her patients and make it unnecessary to leave the unit while on duty; the surgical units have a surgical dressing-room, the maternity department a nursery, labour rooms, and accessories, and each of the others their special requirements. The units are in easy communication with the kitchen, the general laboratory, the operating department, and other common divisions. A unit usually has the following rooms: (1) The ward or private room; (2) toilet room; (3) nurses' toilet room; (4) serving room or diet kitchen; (5) a quiet room for one bed; (6) bathroom; (7) utility or sick room; (8) cabinet for linen; (9) cabinet for medicine; (10) station for nurses. If the units can be made large enough, one or more of the following is included: (11) A solarium; (12) a reception alcove or room. Where two or more units are close together, Nos. 3, 4, 5, 11, and 12 are sometimes arranged so that they can be used in common.

Floor Construction.

The invention of reinforced concrete and reinforced tile has produced a fireproof construction which increases the cost of a hospital only from 10 to 20 per cent. above the cost of one in which wood-construction floors are to be used. Two types are shown in Fig. 3, the first of which contains a woven wire fabric in the lower layer of concrete in short spans and rods in longer spans; it also requires a strong concrete layer on its upper surface, firmly united to the tile. The second type shows two parts to the construction, the reinforced concrete joist and the hollow tile between; this is only a filling, and may be cut out or formed into channels for the reception of pipes and conduits.

Area for Patients.

The minimum area and cubic contents per bed permitted in Chicago at the close of 1912 were 80 sq. ft.

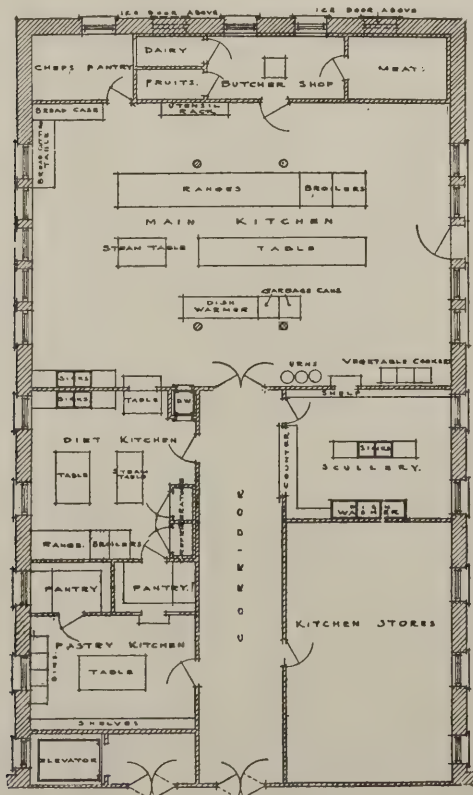


Fig. 1.

AN AMERICAN HOSPITAL KITCHEN.

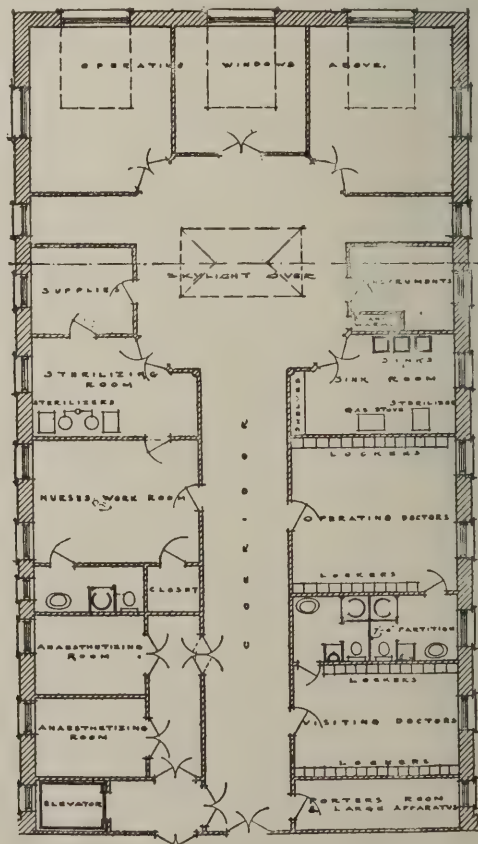


Fig. 2.

A TYPICAL OPERATING DEPARTMENT.

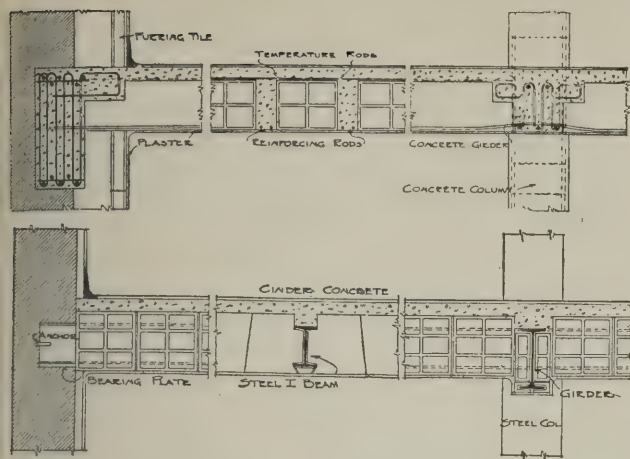


Fig. 3.

TWO TYPES OF FIREPROOF FLOORS.

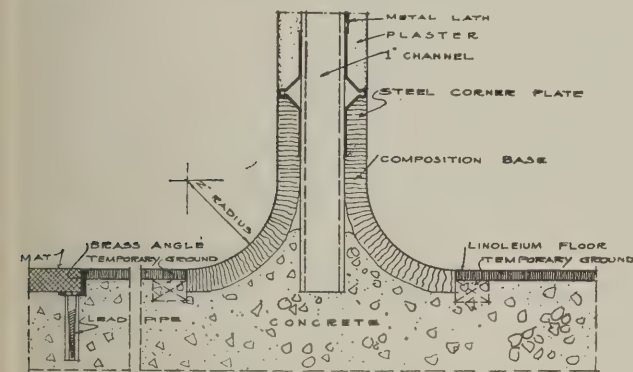


Fig. 4.

FLOOR-ANGLE TREATMENT.

and 800 cubic ft. A new law with factors for adults, children, and infants will be submitted to the Legislature of the State of Illinois in the coming session. A similar law will probably be enacted for the State of Ohio. The factors are as follows:—Minimum square feet of floor space per person: Private rooms, adults 90, children 75, babies 55; wards, adults 80, children 65, babies 45. Minimum cubic feet of air space per person: Private rooms, adults 900, children 675, babies 500; wards, adults 800, children 600, babies 400.

Fig. 1 shows an American conception of an ideally arranged kitchen and its auxiliaries, with minimum height of ceiling 20 ft. There is an areaway 10 ft. wide on each side of the kitchen; the windows go almost to the ceiling, and the window glass is in three independent sashes, each capable of being raised or lowered independently of the others, for purposes of light, air, and additional ventilation as required. Fig. 2 shows a typical operating department, which seems to meet most requirements.

Window Frames.

The standard window is the double-hung check-rail sash, with box frame. This window has the advantage of accessibility for cleaning, but it suffers from several disadvantages. One is that it does not open the entire space of the window, but only half in hot weather; and in cold weather it permits direct draughts. The so-called plank frame window, with hinged or casement sash swinging inward, is also objectionable on account of the direct draughts and the difficulty of applying an adjuster by which the sash can be set and held at any angle. These objections also apply against the same kind of frame with sash swinging outward, but such a sash can be equipped with satisfactory operators, and can be opened and closed without removing the insect screens, which are on the inside when the sash swings outward. A double transom sash in the upper part of a window will ventilate a room rapidly without objectionable

draughts. Such transoms are used in combination with double-hung sash for the lower part of the window, but this is not considered advisable, except where the window frames and the stories are unusually high. Where they are to be used in frames and stories of ordinary height, the lower portion of the window is equipped with outward-swinging casement sash, operated by casement adjusters.

Floor Corners.

Attempts have been made to cover a cement cove with the floor linoleum, following the curvature of the cement upward to a steel corner head, forming the division between the plastered wall and the floor linoleum. This could be done fairly well adjoining the straight walls, but it is unsatisfactory in both re-entrant and salient angles. It will be seen that the salient angles must be filled with a small patch of linoleum or a cement. An ideal combination is shown in Fig. 4.

Refrigeration.

As the proper preservation and condition of foods and the purity of water supply are of the utmost importance in hospital service, so the refrigerating requirements are most exacting. The advantages of refrigeration in hospitals include the cooling of main kitchen and diet kitchen food-supply boxes, refrigeration in service rooms located throughout the hospital, cold storage refrigerators for stocks of foods and supplies, the preparation of such foods as ices, ice-cream, and delicacies for the sick. To eliminate a considerable loss in economy, all the cold piping of the refrigerating system is protected by a heat-insulating covering. Standard coverings are furnished of compressed cork and of wood or hair felt.

Small Hospitals.

The principles of hospital architecture apply equally in the small and the large institution. The radical difference between the two is simply that one contains a very few units and the other a great number of units. In the large hospital there are questions of transportation of food and hospital supplies that do not apply in the small institution. A typical small American hospital has a width of 33 ft. and a length of 111 ft., and contains the following beds:—First floor: 4 three-bed wards, 12; 1 two-bed ward, 2; interns, 2. Second floor: 8 one-bed wards, 8. Third floor: Nurses and help, 12. Basement: Fireman, 1. Total number of beds, 37. Each of two first-floor wards will accommodate an additional bed, making a total of 39 beds. The cost of this building would not exceed \$38,500 (£8,020). If the three floors and all partitions are built of fire-proof construction, with a slate roof on wood roof construction, the cost would not exceed \$45,000 (£9,375), or about 33½ cents (about 1s. 6½d.) per cubic foot.

CORRESPONDENCE.

The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents, who are asked to be brief, and to write on one side only of the paper.

The Statutory Registration of Architects. To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—I have this morning received a cable from the New Zealand Institute of Architects to the effect that the Registration Bill has passed; and the brief history of its Parliamentary progress is that just a year ago it was introduced into the House by the Honourable Mr. Hersman, the Attorney-General, and was read a first time. It passed the second reading in July, and was referred to a special committee of the House. It has now become law.

C. MCARTHUR BUTLER, Secretary,
London, W. Society of Architects.

THE PLATES.

Flats, Nos. 70 and 74, Portland Place, London.

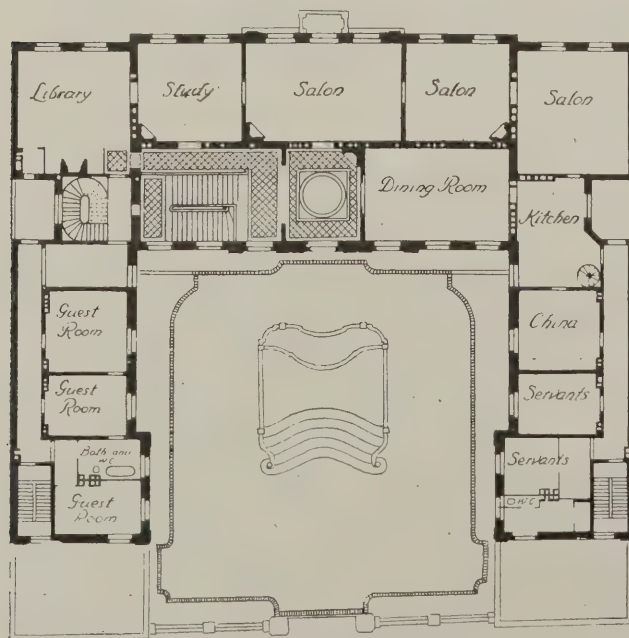
IN the residential parts of the West-End of London many large blocks of flats have been erected within recent years to meet the desires of people who prefer to live in buildings of this character rather than in ordinary houses. Among the most notable of these new buildings are the flats which have been designed by Mr. Frank T. Verity, F.R.I.B.A. In Portland Place two such buildings have been erected from his designs, one at the upper end of this wide thoroughfare, on the east side (which we illustrate in this issue), the other at the lower end of the street, on the west side. The two buildings bear a strong resemblance to one another externally, and both display a treatment similar to that adopted for flats in Paris. The façade rises high above the older houses of Portland Place, and is carried out entirely in Portland stone; in which respect it commends itself, the more customary admixture of brick and stone being far less reposeful in effect. The wall surface is treated quite plainly, relief being gained by judicious projections rather than by carved ornament. Balconies at the different levels add further interest to the design, and the bold cornice above the sixth floor ties the whole together. We regret that the architect is unable to let us have a plan for publication.

Hall Chimneypiece, No. 74, Portland Place, London.

In this, more even than on the exterior of the building, is the French character of the design self-evident. The entrance-hall is finished entirely in stone, with a marble floor, and the chimneypiece in its recess, flanked by columns of good proportion, gives it a focus of interest. There is a severity about the design, wedded to a certain element of elegance and grace, that is very pleasing. The detailing especially merits attention.

Baron von Plessen's Town House, Copenhagen.

Many fine buildings have been erected within recent years in the modern quarter of Copenhagen, the new house for Baron von Plessen, designed by M. Gotfred Trede, being a notable example. This house, both in plan and architectural treatment, is somewhat reminiscent of the large houses of the Baroque period. The plan is perfectly symmetrical, an open courtyard forming an effective feature of the principal front. This courtyard is shut off from the street by iron gates and railings. The first and second floors of the building



BARON VON PLESSEN'S TOWN HOUSE, COPENHAGEN:
FIRST-FLOOR PLAN.

are set apart exclusively for the use of Baron von Plessen; but the ground floor, which comprises a pair of residential flats, is available for letting purposes. The grand staircase to the Baron's apartments is quite independent of the ground-floor accommodation. The house is built of red bricks, the roof being covered with glazed tiles and copper. The exterior architectural decorations are modelled in cement, being the work of M. Lamberg-Peterson.

Princess Christian's Homes, Hildenborough.

This building was erected as a home for feeble-minded girls. It consists of two self-contained sections, each providing accommodation for thirty inmates. A folding screen enables the dining halls to be thrown into one large apartment. The slopes of the roofs are covered with pantiles, the flats being asphalted. The walls, which are 11 in. thick, are hollow and cement-backed. The windows are of a specially-designed hopper type. Mr. Clough Williams-Ellis was the architect. The contractor was Mr. Charles Elcock, of Hartfield, Sussex, the contract sum being £2,775.

Shop-Front, No. 173, New Bond Street, London.

In the case of this shop-front it is obvious that the requirements were exceptional. The exclusive nature of the business—that of a goldsmith having a distinguished clientèle (as the Imperial Arms of Russia over the doorway suggest)—precluded any idea of large window display; the desire being to show one or two rare objects only, indicative of the resources within. The shop-front is executed in oak, and was designed by Messrs. Frank Collinson and Co.

Neo-Grec Detail.

The Vestibule de Harlay in the Palais de Justice, Paris, as our illustrations have shown, abounds in brilliant examples of detail, but its general scheme is no less noteworthy. The doorway at the foot of the stairs leading to the Assize Courts well indicates how admirably the several parts are related to one another. This doorway, indeed, is a masterpiece of its kind, the sculpture and the architecture being woven together in a manner that only a great architect like Duc could effect.

Working Drawings of Chapter House Roof, Liverpool Cathedral.

This example of reinforced concrete adapted to roof construction is fully described in the article on "Reinforced Concrete at Liverpool Cathedral" which is published on page 508 of this issue.

*** As in future the illustrations in this journal, in the majority of cases, will be from photographs of buildings, the Editors invite architects to submit photographs of their recent work. When the illustrations are given as full-page plates twenty-five copies on art paper will be sent to the authors. Architects will realise that many conditions, which may not occur to them, cover the selection of illustrations for a technical journal, and that when photographs are not used it does not necessarily imply that the work is not worthy of publication: it may happen that at the moment the illustrations do not fit in with the general scheme.

For convenience in filing them for future reference, a special portfolio for the plates has been prepared. All readers having, or placing, a standing order with a newsagent to supply the JOURNAL each week for twelve months can secure one of these portfolios free of all cost, by sending in an application to our offices at Caxton House, Westminster. The subscription may be paid weekly when the paper is obtained, or in any other way convenient to the reader. To meet the constantly expressed desire of many subscribers to collate plates in accordance with the subjects illustrated, further portfolios can be purchased for 1s. each (postage 3d.)



CURRENT ARCHITECTURE. XX.—FLATS, Nos. 70 AND 74, PORTLAND PLACE, LONDON, W.

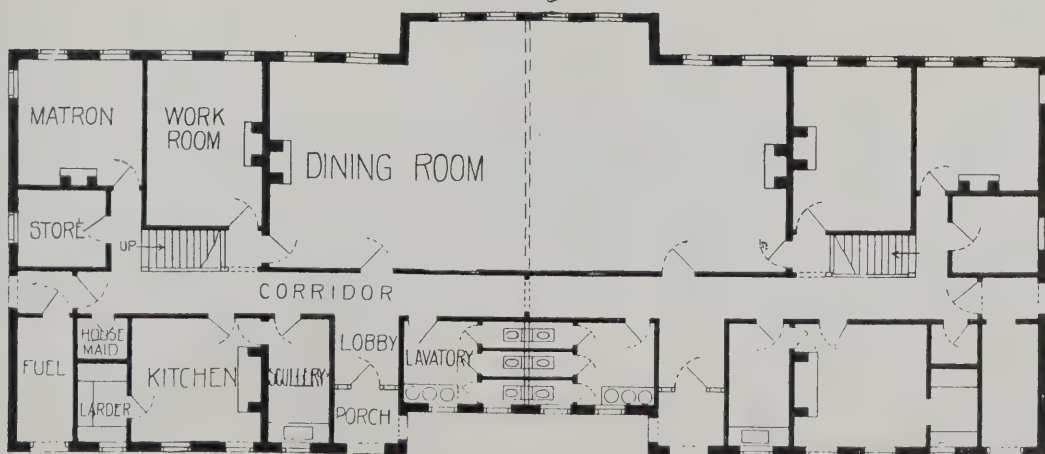
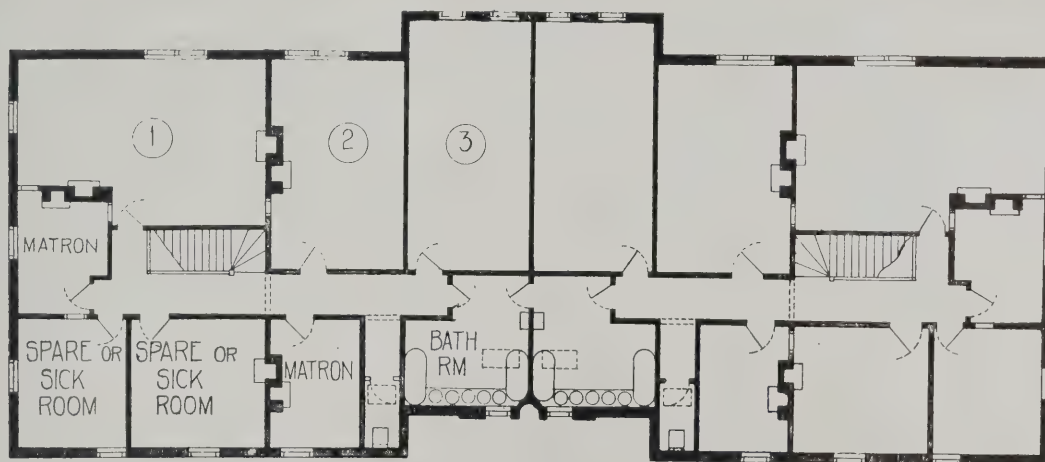
FRANK T. VERITY, F.R.I.B.A., ARCHITECT.



CURRENT ARCHITECTURE. XXI.—CHIMNEYPiece IN HALL, No. 74, PORTLAND PLACE, LONDON, W.
FRANK T. VERITY, F.R.I.B.A., ARCHITECT.



CURRENT ARCHITECTURE. XXII.—BARON VON PLESSEN'S TOWN HOUSE, COPENHAGEN: GARDEN FRONT.
GOTFRED TREDE, ARCHITECT.



Ground and First-Floor Plans.

MODERN DOMESTIC ARCHITECTURE. X.—PRINCESS CHRISTIAN'S HOMES, HILDENBOROUGH, KENT.

CLOUGH WILLIAMS-ELLIS, ARCHITECT.



MODERN SHOP FRONTS. IX.—No. 173, NEW BOND STREET, LONDON, W
DESIGNED AND EXECUTED BY FRANK COLLINSON AND CO.



NEO-GREC DETAIL. IX.—DOORWAY LEADING TO ASSIZE COURTS, VESTIBULE DE HARLAY. PALAIS DE JUSTICE, PARIS.
J. L. DUC, ARCHITECT.

LIVERPOOL CATHEDRAL.

CHAPTER HOUSE ROOF.

Details of Re-inforced Concrete Construction

1. Slope 2'0" dia. to be left in top of cone for removal of centering. Rough slats center 1" thick to be laid after centering is removed and wood finish to be backed in concrete.

2. All circular horizontal bars to be 5/16" dia. The figures thus: - 4/16" indicate the number and length of bars in each ring. All radial bars in dome and cone to be 3/4" dia. Bars to be spaced as shown and bent true to radii required and to have a minimum covering of concrete of 3/4". Exceptions to the above are stated.

3. 1 1/2" minimum covering of concrete for height indicated.

4. 3 bars 7/16" dia. each in 5' length 23' 6" long.

5. 1 bar 7/16" dia. in 5' length 22' 3/4" long.

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HERE AND THERE.

SO tolerant are we becoming in this age of grace, so anxious to see all sides of every question, that I fear we are in grave danger of doing nothing very definite. Party politics may be the bane of the State, but I do not see how public affairs are going to be conducted on any other lines; and, in the same way, though there may be differing opinions as to the right course to pursue in all that concerns the art of architecture, I see little prospect of achieving any permanent results unless a definite stand is made and a definite standard set up. So there are two courses open to us—either we must keep silently to the path we choose to tread, turning a deaf ear to all the clamour around us, or we must gain a clear conception of what we seek to attain, and resolutely maintain it. The former is not, to my mind, a very stimulating course to adopt, so we had better accept the latter alternative. Henceforth, then, no temporisings, none of those broad views which embrace a dozen different and conflicting energies. If you are to be one of those who turn back to the arts of eighteenth-century England, to the "Georgian," then you must not see any blemishes on the model. What others of another camp may point out scoffingly as "coarse," you must recognise as nothing less than "bold"; what they criticise as "lumpy" ornament, you must defend as "robust"; the ceiling painters must be eulogised and their work regarded as a most elegant part of the whole scheme of decoration, with never a memory for those flippant remarks of one who thought the artist had been to Heaven and invited all whom he saw there to take a place in his allegory in paint; Chippendale's manners must be regarded with but one feeling—that of deep respect and admiration, and though the Grand Tour may have started a fashion for Chinese wall-papers and such things as the Pagoda at Kew, you must be ready to see good in all of them. Herein lies your only way of architectural salvation. The moment you begin to admit the possibility of the other man being right you are lost.

But do not forget that you, too, have your turn at criticism, so that when the Greek revivalist comes along you can give him a good time. What he calls "chaste" and "scholarly" you can call "cold" and nothing less than bare-faced copying of a thing adapted to its own time and climate, but inappropriate to the present day in England. You can say how utterly tired you are of the stock array of Doric columns, the Attic enrichments, the feeling of intense intellectualism—chilling, devoid of human warmth—which pervades the whole. And if there are any innuendos being circulated, you can suggest what occurs in that seclusion of the drawing-office, where classical monographs and books of Greek architecture and sculpture are so closely studied that one might almost imagine they were being copied from.

Or, taking a third case out of the many other possible ones, you can deride the Renaissance and the Classic Revivals, lock, stock and barrel, and stigmatise them as respectively the bombastic expression of big-wigism and the pose of people who wish to be thought "scholarly." Thus, there is no lack of choice. But success lies only in the adoption of a clear issue. You must not harbour the mere idea that your idol might have feet of clay.

There are many places we often refer to with the utmost familiarity whose precise position on the map we should find it difficult to indicate; the two most frequently mentioned being Timbuctoo and Jericho, both places which are deemed to be the fitting final home of those who put the average middle-class Englishman out of countenance in the course of an argu-

ment. With Timbuctoo I am not at this moment concerned, though, possibly, if we took the trouble to find out, it may bristle with matters of interest to the architect and the builder. It is Jericho I wish to refer to, and its walls more particularly. We may as well localise the place to begin with, so let it be briefly stated that Jericho was once an important city about fifteen miles from Jerusalem, that it was taken by the Israelites when they entered Canaan, destroyed under Vespasian, and rebuilt under Hadrian. It is, however, with the first part of its history I now wish to deal. Many events recorded in the Old Testament have been attested by the discoveries of archaeologists during the past century, but the complete destruction of the walls of Jericho, as related in the sixth book of Joshua, would seem to require qualification. It will be remembered that, after circumambulating the city for six days, the Israelites gathered together at daybreak on the seventh day, and at the sound of the blowing of the priests' trumpets they "shouted with a great shout," and the wall "fell down flat."

The only instance of any such occurrence as this with which we are familiar to-day is the blowing-in of windows in the vicinity of a powder manufactory. There appears, however, to be some doubt as to the complete accuracy of the record. The Germans have been excavating at Jericho, and last week Mr. Handcock, in one of his lectures at the British Museum, exhibited a photograph which showed very substantial remains of the walls of the ancient city. A clerical disputant tries to explain matters by affirming that the older version which says "the wall fell down beneath itself" is the proper one, clearly indicating how the wall sank bodily till the top was level with the ground, "otherwise Rahab and her house on the wall would have fared badly, and a formidable heap of loose stone and débris would have prevented Israel entering the city so easily—'every man straight before him'"; and he thus contends that much unshattered wall below the surface of the ground is another confirmation from archaeology of the accuracy of Bible history. I fear, however, that Mr. Handcock and his photograph must stand for the more accurate story.

* * * *

Henceforward architects will have to take into account another factor in the design of their buildings—the cleaning of windows, for, at the recent conference of the Window Cleaners' Federated Associations at Nottingham several delegates emphasised the difficulties of cleaning windows in consequence of "the modern tendency of architecture." My newspaper tells me that "A Sheffield representative observed that architects manifested great disregard by designing windows which were not accessible, and owing to lack of ventilation this became a serious matter from the health point of view. The Mayor of Nottingham, who is an architect, admitted that there was some justification for complaints, and suggested that the conference should make recommendations to the professional bodies concerned." The R.I.B.A. and the Society of Architects may expect therefore to have their faults pointed out to them, and it is hoped that no member will ever again put in a window which cannot be got at. Everyone has his point of view, and the architect must not mind the Window Cleaners' Federated Associations raising a criticism. They are not concerned with symmetry or fenestration, but with smuts and wash-leathers—things which also take their part in the scheme of life. Architects, therefore, might be as far-seeing as the engineer-designer of the new Waterloo Station, who has devised a sort of iron member at cornice level, serving as a rail on which suspended trolleys can be run when the glass wind-screens need to be cleaned.

UBIQUE.

THE CONDITIONS OF BUILDING AND ENGINEERING CONTRACTS.—IX.

Being an Explanation of the Clauses of the General Conditions of Specifications and the Legal Decisions affecting them.

SPECIALLY CONTRIBUTED BY E. J. RIMMER, M.Eng., B.Sc., A.M.Inst.C.E., of Lincoln's Inn and the Northern Circuit, Barrister-at-Law, and KENNETH G. THOMAS, B.A., LL.B. (Cantab.).

(Continued from page 485, No. 985.)

Parentetical numbers in the text refer to cases noted at the end of each section.

CHAPTER VII.

FORFEITURE OF MATERIALS AND PLANT.

The clause which deals with this subject usually provides that upon certain happenings and in certain events (*infra*) the building owner shall have a right to determine the contract and enter upon and take possession of the works, plant, materials and apparatus of the contractor; and that the building owner may use or sell the same as if they were his absolute property. It will usually provide that before determination the building owner—either by the town clerk of the municipality or secretary of a company or by the engineer—shall give formal notice to the contractor of intention to determine the contract; and that the obligations, liabilities, and responsibilities of the contractor shall not in any way be affected by such notice or entry.

Under this heading it is necessary to consider:

I. When the rights of the building owner accrue.

II. How the rights of the building owner must be exercised.

III. The effect of forfeiture.

IV. The effect of a wrongful forfeiture.

I.—When the Rights of the Building Owner Accrue.

The parties to a contract may agree that the rights of the building owner to determine the contract shall accrue upon the happening of any event whatever, and although the Courts will construe a forfeiture clause very strictly, yet if "from the whole tenor of the agreement it appears that, however unreasonable and oppressive a stipulation or condition may be, the one party intended to insist upon and the other to submit to it, a court of justice cannot do otherwise than give full effect to the terms which have been agreed between the parties" (65).

The following are the usual grounds upon which the rights to determine the contract and take possession of the works do arise:

(a) In case the contractor "*shall fail in the due performance of any part of his undertaking.*"

This is expressed in very general terms; and to entitle the building owner to exercise his powers the Courts would require very strict proof indeed that the contractor had so failed. It will be seen that there is here no provision made for the determination by the engineer or other person whether the contractor has so failed in the due performance of any part of his undertaking as to give the rights of forfeiture, and, therefore, subject to the arbitration clause, which may or may not extend to a dispute arising as to the interpretation of this sentence, it will be open to the Courts to decide the matter. In any case it is submitted that nothing much short of an abandonment of the work by the contractor before completion would in the opinion of a Court or arbitrator bring the forfeiture clause into force under this condition. It is therefore advisable to describe more particularly in this clause the manner in which the contractor may "fail in the due

performance" of any part of his undertaking—e.g., by failing to commence the work at the time or in the manner required by the contract or by the engineer; by failing to comply with the requirements or notices of the engineer or employer; by failing to proceed with the execution of the work according to the plans, drawings, and specifications; by failing to make proper progress with the works for a stated period after receiving from the engineer written notice to employ more men upon them; by failing to submit any work or materials to proper tests for a stated period after receiving written notice from the engineer requiring the same; by failing to remove materials from the site or to pull down and rebuild work for a stated period after receiving from the engineer written notice that the said materials or works were condemned and rejected by the engineer, etc., etc.

(b) In case the contractor "*shall not, in the opinion and according to the determination of the engineer, have exercised such due diligence and made such due progress as would enable, or would have enabled, the works of the company to be efficiently completed in the time or extended time as provided in the contract.*"

Here the skill and judgment of the engineer are invoked for the determination of the question whether the right of forfeiture has arisen by reason of failure by the contractor to use due diligence and make due progress with the work.

It is clear that under this clause the parties intend, not that the engineer shall hold a judicial enquiry or act as arbitrator; but that he shall act as quasi-arbitrator and determine the matter by the use of his knowledge and skill and not as a judge. The finality and binding effect of his decision may, however, be affected by the arbitration clause. Thus, an arbitration clause which does not expressly exclude this matter from submission, and which provides that all disputes shall be referred to arbitration either of another person than the engineer or the engineer himself, will destroy the finality of the engineer's decision made summarily under this clause, and the matter will then require formal reference to the arbitrator for decision (66).

Again, an engineer may disqualify himself from making a final decision under this or any other onerous clause by failing to preserve an attitude of judicial independence (67).

The fact that the engineer is given the power to decide whether the contractor has failed to use due diligence or make due progress will not give him power to bind the contractor by his determination if, by his own wrongful act or default, the building owner or engineer has prevented the contractor from completing the work—e.g., by failing to supply plans or to set out the land (68). Otherwise, the engineer's decision, if made without fraud or collusion with the building owner, will be binding upon the contractor.

The power of forfeiture under this provision must, however, be exercised within the original or extended time of completion.

(c) In case the contractor "*shall become bankrupt or insolvent, or shall compound with his creditors, or propose any composition to his creditors for the settlement of his debts, or shall carry on or propose to carry on his business under inspectors on behalf of his creditors, or shall commit any act of bankruptcy.*"

If determination of the contract or forfeiture is sought to be made upon the bankruptcy of the contractor or upon an act of bankruptcy it will be void against the trustee in bankruptcy (69).

It is outside the scope of this work to define the rights of the trustee in bankruptcy, but readers are referred to Section 44 of the Bankruptcy Act, 1883, which vests in the trustee in bankruptcy:

(i.) All such property as may belong to or be vested in the bankrupt at the commencement of the bankruptcy, or may be acquired by or devolve on him before his discharge.

(ii.) All goods being, at the commencement of the bankruptcy, in the possession, order, or disposition of the bankrupt, in his trade or business, by the consent and permission of the true owner, under such circumstances that he is the reputed owner thereof.

The "commencement of bankruptcy" is defined by Section 43, and is the time of the first of the acts of bankruptcy proved to have been committed by the bankrupt within three months next preceding the date of the presentation of the bankruptcy petition. (In regard to transactions by the debtor before the receiving order has been made with a creditor not having notice of an available act of bankruptcy, see Section 49.)

"Goods" which pass to the trustee in bankruptcy include choses in action (*i.e.*, rights under a contract); therefore, the trustee in bankruptcy has the same right as the bankrupt contractor under the contract, and may, if he choose, continue to carry on the work of the contractor under the contract. The trustee, however, only takes the property and rights of the contractor subject to all his liabilities and obligations, so that upon the trustee's failure to comply with the other terms of this clause (*i.e.*, duly to perform his part of the undertaking and to exercise due diligence and progress in the work, etc.) the building owner will be enabled to determine the contract and forfeit the plant and materials from him.

From the foregoing it is therefore to be doubted whether so much of this part of the forfeiture clause as applies to bankruptcy or acts of bankruptcy is of any avail to the building owner, although it is good as between the parties (69), and in many contracts it is not inserted.

II.—How the Rights of the Building Owner Must be Exercised.

It is to be considered how the powers under this clause must be exercised. As has been stated, the Courts will construe the clause very strictly, and if it requires that notice in writing to determine the contract shall be given to the contractor by the building owner, such notice should state clearly and unmistakably the grounds

on which the building owner is about to exercise his rights under the clause. Unless it is so provided in the contract, notice of writing is not required to be given, but it is necessary that the power should be exercised in no uncertain manner. If the building owner continues to deal with the contractor as if the agreement still subsisted, after he has notice of any event which would empower him to enforce the forfeiture clause without exercising his power within a reasonable time, he will be held to have waived his power to exercise his rights under it, unless the default of the contractor giving him that power is a continuing one. Thus, for example, when the power to forfeit accrued by reason of non-completion by a definite date, it was held that notice of forfeiture three weeks afterwards was not made within a reasonable time and that the agreement subsisted.

But waiver by the building owner of his power to enforce the forfeiture clause on one occasion does not preclude him from exercising his rights under it if the same breach occurs again.

The failure to complete at a particular time is not a continuing breach, and if after such non-completion the building owner treats the contract as subsisting, and thus waives his rights under the forfeiture clause, he may revive them by giving notice to the contractor to complete within a reasonable time.

In the case of the bankruptcy of the contractor or assignment of the contract by him, the building owner will be required to give notice of forfeiture to the trustee or assignee in lieu of the contractor.

III.—The Effect of Forfeiture.

The third point for consideration is the effect of the building owner exercising his rights under this clause. The rights are usually provided by the clause:

(a) *To determine the contract.*

If the building owner determines the contract he will be at liberty to have the works completed by another contractor, or to carry on the works by administration, and provided his rights under the contract are preserved by this clause (*infra*) he will have a right of action against the original contractor (or may prove in his bankruptcy) for the damage or loss occasioned to him by his breach of contract in failing to complete.

(b) *To enter upon and take possession of the works, plant and materials and apparatus of the contractor and to use or sell them as if they were his absolute property.*

If there is a vesting clause the part of the sentence which refers to plant and materials is unnecessary, as the property is already in possession of the building owner.

The right of the building owner to the plant and materials of the contractor as against the holder of a bill of sale over them or against an execution creditor who has levied execution upon them depends on whether there is a vesting clause in the contract or not (see *ante*, Chapter VI., 485).

The rights of the trustee in bankruptcy of the plant and materials have been dealt with on pp. 485 and 486.

(c) *To complete the contract or employ a contractor with some other person to complete the contract;*

(d) *To pay for completion of the works out of money due to the builder on the contract—i.e., retention money;*

(e) *That if the cost of the completion of the works exceeds the balance in the hands of the building owner the contractor shall pay to the building owner the excess. This*

may be specifically stated by the clause, but if the obligations of the contractor under the contract are preserved (*infra*) the right of the building owner to sue the contractor for the loss or damage to himself by reason of having employed another contractor to complete will be sufficiently guarded without this provision.

There is also inserted in the forfeiture clause the safeguarding provision that "the obligations, liabilities, or responsibilities of the contractor shall not in any way be affected by forfeiture," or "the contract shall be determined save as to the rights and powers conferred upon the corporation and engineer thereby."

This provision is important, in the first place, as it gives the building owner rights to liquidated damages or other damages due to him for a breach or breaches of the contract prior to forfeiture, and enables him upon the bankruptcy of the contractor to prove in his bankruptcy for the amount. In the second place it is important because upon the bankruptcy of the contractor his obligations, liabilities, and responsibilities will be preserved and devolve upon the trustee in bankruptcy, as well as any rights or interests in the contract which may in spite of this clause pass to the trustee (see *ante* p. 485).

IV.—The Effect of a Wrongful Forfeiture.

As has already been seen, the rights to forfeiture may be defeated in several ways:

(a) By interference or default of the engineer or building owner, by which the contractor is prevented from proceeding with or completing the works.

(b) By the building owner waiving his rights under the clause or by preventing himself from exercising his rights by treating the contract as existing.

(c) By the building owner failing to exercise his rights at the proper time.

(d) By absence of or defect in the notice to the contractor of intention to exercise his rights.

(e) Fraud by the engineer or building owner.

Any forfeiture made under the above circumstances is therefore made wrongfully, and the contractor may immediately consider the contract and his obligations under it at an end. His remedy is then an action against the building owner, in which he can claim:

(i.) Payment for all the work which he has already done under the contract upon a quantum meruit; (ii.) Damages for breach of contract; (iii.) Compensation for the use of plant by the building owner; and (iv.) Interest on money found payable as from the day when it ought to have been paid.

Moreover, all the powers of the engineer under the contract are put an end to, so that a certificate by the engineer is no longer a condition precedent to payment, and as the progress certificates are only provisional the contractor can have the whole work valued by a person other than the engineer.

So, also, it has been held that a Court may refuse to stay an action and submit disputes to arbitration after the building owner has wrongfully exercised his powers under this clause (71).

Cases referred to in the Text:

(65.) *Stadhard v. Lee* (1863) 7 L.T., 850. Per Cockburn, C.J.

(66.) *Hohenzollern Actien-Gesellschaft, etc., and City of London Contract Arbitration, in re:* (1886) 54 L.T., 596. Locomotives supplied by the plaintiff were to be paid for by the defendant on the certificate of the latter's engineer. The contract contained a clause referring all disputes to arbitration. The engineer refused his certificate, and a dispute arose. *Held:* That the arbitration clause came into operation, and

that the certificate of the engineer was not a condition precedent.

(67.) *Roberts v. Hickman:* (1913) A.C., 229. Payments were to be made to contractors on the certificate of the architect. The latter, although in his own opinion the contractors were entitled to a certificate, withheld the same in accordance with the instructions of the building owner. *Held:* That in an action for the recovery of the money, the building owner could not set up the defence that the issue of a certificate was a condition precedent to the bringing of the action.

(68.) *Roberts v. Bury Commissioners:* (1870) L.R., 5 C.P., 310. The architect had power to determine the contract if the contractor should fail in the due performance of any part thereof. The building owner, by his own wrongful act or default, had in fact prevented the contractor from completing. *Held:* That the architect could not bind the contractor by his decision that the building owner had not done so.

(69.) *Ex parte Jay; In re Harrison:* (1880) 14 Ch. D., 19. The contract contained a provision for forfeiture of materials to the building owner on bankruptcy of the contractor. The contractor went bankrupt, and the trustee seized the materials. Up to the time of filing his petition the contractor had made no default in the performance of his contract. *Held:* That the provision for forfeiture on bankruptcy was void, and that the materials vested in the trustee.

(70.) *Marsden v. Lambell:* (1880) 43 L.T., 120.

(71.) *Musker v. Cape Town Railway:* (1865) L.R., 2 Q.B., 84. The building owner ejected the contractor and completed the contract himself, and the contractor brought an action for breach of contract. The contract contained an arbitration clause, but it was *held:* That the building owner was not entitled to a stay of proceedings pending arbitration.

R.I.B.A. FINAL EXAMINATION.

Testimonies of Study.

The Board of Architectural Education of the R.I.B.A. announce that the designs submitted as testimonies of study by the following students, who are qualifying for the final examination, have been approved:—

SUBJECT XI. (a).

Design for a County Club.

C. W. Craske.	S. W. Ackroyd.
W. R. Davison.	P. J. Adams.
V. Dyson.	H. Andrew.
H. N. Jepson.	W. Alison.
A. Nisbet.	J. S. Fyfe.
J. M. Brown.	G. A. Rose.
J. A. Clarke.	H. T. Cooksey.
	H. M. Whitehead.

SUBJECT XI. (b).

Design for a Clock Tower.

A. E. Maxwell.	W. E. W. Terrell.
G. W. Callender.	W. B. Binnie.
A. S. Burnett.	A. F. Hooper.
N. S. Robinson.	E. S. Wallace.
A. Silcock.	E. H. Philp.
T. T. Jenkins.	F. Jenkins.
C. C. Cheek.	A. A. Addey.
A. W. Robertson, jun.	A. A. Foote.
A. E. Shibley.	A. P. Stoner.
G. M. Eaton.	E. B. Norris.
A. J. Wood.	H. S. Triscott.
E. B. Musmann.	F. H. Glazebrook.
	E. R. F. Cole.

A TOWN-PLANNING INSTITUTE.

A Town Planning Institute has been formed with the object of "advancing the study of town planning and civic design, promoting the artistic and scientific development of towns and cities, and securing the association of those engaged or interested in the practice of town planning."

The majority of those constituting the new institute are architects, engineers, or surveyors practically engaged in town planning, but associate and honorary members, consisting of persons who have taken a special interest in town planning, will be accepted. The first council consists of Professor Adshead, Messrs. H. V. Lanchester, P. T. Runtun, Raymond Unwin, J. A. Brodie, J. W. Cockrill, W. T. Lancashire, H. E. Stilgoe, Thomas Adams, G. L. Pepler, W. R. Davidge, J. S. Birkett, and E. R. K. Abbott.

Mr. J. Burns, Sir J. Wolfe Barry, Sir Alex. R. Stenning, and Sir Aston Webb are to be asked to become vice-presidents. Among the hon. members are Lord Lytton, Lord Plymouth, Mr. J. Burns, Mr. J. W. Whitley, M.P., Mr. Ebenezer Howard, and Mr. H. Vivian.

THE ROMAN PALLADIAN SCHOOL OF ARCHITECTURE.*

BY A. E. RICHARDSON.

THE accession of George II. to the throne in 1727, in itself a matter of small moment, coincides with the definite establishment of the academic school. Classicism during this reign became completely Anglicised; the efficacy of the touchstone of antiquity was proving itself. The French were no longer regarded as being the sole arbiters of taste, although the pernicious influence of the contemporary ornamentation was still percolating through. Dilettantism, on the part of a few cultured noblemen, gave place to a general movement in favour of foreign travel; some architects still acted as agents for wealthy clients, but others journeyed abroad on their own initiative to perfect their education. The picturesque and romantic character associated with the preceding age, apparent in the demeanour of the buildings as in the ordinary ways of life, took on a graver mien; but on that account it is not to be the less admired.

Under the direction of Sir Robert Walpole, who by his long ascendancy as First Minister of the Crown, held the real reins of government, the next era was begun—one of progress, consolidation, and reform. It left its beneficent mark on all branches of activity, but in none more than those of science and art.

A Brilliant Period.

We are indebted to the gossip letters and volumes compiled by Horace Walpole, the youngest son of the Minister, for a more than passing glimpse at the period under discussion. The papers were collectively published in 1798. The letters are vivacity and cheerfulness personified. In such company we can attend routs, balls, and masquerades; music rings all through them; gorgeous carriages and sedan chairs are ours, clusters of wax candles, fine wit, rare plate, and a refinement which sparkled and glittered. Such is a picture of the thirty-three years' reign of the second of the Georges. But it was this selfsame Walpole, the professed admirer of Classic art, the compiler of George Vertue's "Anecdotes of Painting in England," who perpetrated the Gothic villa at Strawberry Hill. The whole period blossomed with refinement and learning; the academic school in architecture had its counterpart in literature; we are approaching the age of good taste when Adam Smith and Dr. Johnson rule, when even Sir Joshua Reynolds, whose avocation was the brush and not the pen, wrote the polished "Discourses." In the enchanted realms of music the academic was also enthroned. Handel resides with Lord Burlington, whom he deserts afterwards for the Duke of Chandos and plays the great organ at Canons. The Royal Academy of Music is instituted with Handel at its head; he sometimes condescended to play at the Chapel of the Foundling Hospital.

Gothic and Chinese Decoration.

All these events, although properly outside the sphere of this discussion, were nevertheless so intimately associated with its well-being at the period, that to omit to mention them would deprive my account of half its interest. By Batty Langley, the teacher of carpenters and builders, the seeds of Carpenters' Gothic were nurtured, and, finally, through the influence of Wal-

pole, who caustically remarks on Langley's merits, the Gothic taste reached Chippendale. This throws a curious side-light on an age remarkable for the zealous study and application of Classic architecture. Another divergence exists in that strange affectation for Chinese decoration, which some authorities attribute to the travels of the youthful Chambers in China, but which in reality resulted from the practice of sending furniture to the East to be lacquered. A stronger and more pertinent reason can be adduced. The practice of employing the architectural orders to excess for the design of interiors led to a revolt against such methods, and as the desire was advanced for some form of light architectural decoration as a foil to the comparatively coarse forms introduced by many architects. These remarks apply exclusively to the treatment of domestic interiors. That such a foil was necessary to the characteristic megalithic heaviness led to the adoption of a lighter system of Classic decoration; for a time reversions of the contemporary Louis Quinze style were used for the embellishment of ceilings and other attributes. But it was left for those opportunists, the Brothers Adam, to consummate the system in their own elegant manner.

Chief Exponents of the Palladian Manner.

Reverting to a study of the architects and architecture of the early period of the Roman School, we find that eight names remain to be considered. The first is that of James Gibbs, a man who imitated the manner of Wren in the design of his churches, but who brought to bear on the problems of the time the sound knowledge he had acquired in Italy. Like Wren, he achieved as a composer of masses, but failed in the adaptation and selection of Classic ornament. Gibbs was born in 1682 and died in 1754. Fifty years of his life were spent in the pursuit of architecture. It appears that Gibbs had for his patron the eleventh Earl of Mar, who sent him to Italy, Paris, and Rome. Gibbs immediately started carefully to study the grandeur of the antique ruins; he came into contact with many notable Italian architects of the time and made drawings for the various English amateurs then visiting the city. Returning to England in 1709, he became the friend of Sir Christopher Wren, and eventually gained an official post as one of the surveyors to the Commissioners for the building of the Fifty Churches. In 1714 he carried out his first design, the Church of St. Mary-le-Strand, completed in 1717. In 1719 he was employed in adding the belfry stage and spire to St. Clement Danes, the only work Gibbs did in connection with a building of Wren's. Two years after this date he designed and erected the Church of St. Martins-in-the-Fields, which occupied five years and cost £32,000. While St. Martin's was building, Gibbs erected the Church of St. Peter's, Vere Street, originally known as the Oxford Chapel. In 1723 his labours were extended further afield to the nave of All Hallows', Derby. At Cambridge he built the Senate House, for which work he was probably joint architect with Burrough. He executed Fair Lawn Church, Kent, about 1724. About the year 1730, further evidence of his skill appeared in the design and execution of St. Bartholomew's Hospital, with the ex-

ception of the earlier Smithfield G. These buildings were originally executed in Bath stone, but were recased in Portland stone by Philip Hardwick in 1818. He carried out King's College, Cambridge, after 1723. Merely to mention the vast important domestic works throughout the country would entail a many-paged catalogue; he prepared designs for gate piers, chimney-pieces, and all the lesser embellishments essential to architectural effect. His most notable achievement, however, putting aside the magnificent church of Martin's-in-the-Fields, is the Radcliffe Library at Oxford, built between the years 1737-47, a fitting climax to his labours. Gibbs employed two Italians, Artaria and Bagutti, to execute plaster decoration, the majority of his buildings. The houses in Cavendish Square usually attributed to James, show the vigorous handling of Gibbs.

Brettingham.

The career of Matthew Brettingham is not of any considerable account in the development, but is interesting as showing the work done by the lesser men of the time. He appears to have been employed at the works at Holkam in the capacity of clerk of the works, but Kent's claim to the whole design is indisputable, although Brettingham introduced many features of great merit. In London he carried out two notable town houses—Norfolk House, St. James's Square, and Cumberland House, Pall Mall. One of the rooms designed by Brettingham is now incorporated in the Royal Automobile Club's building.

Brettingham during his early years travelled abroad very considerably. In 1748 he formed one of the number of young English artists in the colony at Rome. Gavin Hamilton was also among the number, and in April of the same year James Stuart joined Hamilton and Brettingham and set off on foot for a tour of exploration to Naples. During the journey project of a journey to Athens was mooted. Two years later, in 1750, Robert Bouverie, James Dawkins, and Robert Wood started their journey through the west of Asia Minor, and finally, in 1753, Dawkins and Wood left for their celebrated exploration to Palmyra and Lebanon, the subsequent publication of their book further influencing the Roman school.

Vardy and Others.

John Vardy was a pupil of Kent's, very little is known concerning the early years of his career. He completed the west façade of the Horse Guards, previously designed by Kent, and designed the Court of King's Bench at Westminster. His reputation rests on the dignified design of Spencer House, overlooking St. James Park, 1753-63; alterations were subsequently made by Stuart.

Henry Flitcroft was a contemporary of Vardy's. His work follows the vanguard of the time. The church of St. Clements-in-the-Fields, the largest of his works, imitates the work of Gibbs very closely; it was finished in 1739. In 1747 Flitcroft was engaged designing and erecting the Parish Church at Hampstead. The vaulted interior is very fine.

The name of William Robinson is very little known in connection with the work of the period. He succeeded James Kent as clerk of the works at Greenwich Hospital. Between the years 1750-75 he assisted Horace Walpole in realising the G.

* The fourth of a series of lectures on "The Work of the English Architects of the Eighteenth Century and the Neo-Classical School of the Nineteenth Century," given at University College, Gower Street.

ark at Strawberry Hill. In 1770 he built the Excise Office in Old Broad Street, which was demolished, and prepared a design for the Government buildings on the Savoy, the plans for which were passed over at his death for those designed by Sir William Chambers at Somerset House. A controversy raged over this point for some considerable time.

Isaac Ware.

In the career and work of Isaac Ware we are once again confronted with the theme of travel and study abroad. Ware lived in very humble circumstances, but was sent by a wealthy patron to Italy early in the century. His public works comprised the Town Hall at Oxford, 1754, which was demolished, and the conversion of the neighbouring House into a hospital, where the present St. George's Hospital stands. His best work is Chesterfield House, Mayfair, begun in 1749, and Wrotham Park, near Barnet (1754), is one of the finest country mansions. Ware constructed many of the town houses then building in the neighbourhood of Dover Street, Bruton Street, and Albemarle Street. No. 6, Bloomsbury Square, with its fine staircase and screen of Ionic columns in the hall, is representative. In common with the other architects of the day, he translated Palladio and published the "Complete Body of Architecture," the latter a really useful volume which may have inspired Chambers to write his "Elements of Civil Architecture." Without grudging Ware his particle of the praise due to him, he frowned his sentiment for contemporary French ornament to overpower his better judgment, hence the many swirls and scrolls found in the ceilings, wall panels, and even locks to the doors of his houses. The career of Robert Morris must next be glanced at. He followed the Palladian pattern in the design of the centre portion of the lodge at Richmond Park for George II., as for the Palladian Bridge at Milton erected in 1736. In 1750 he designed Kirby Hall, Yorkshire—Carr of York being the mason.

Growth of the Academic School.

By the year 1740 practically all the lesser men were following the lead of the academic school in the direction of Roman models. The projection of an amphitheatre in the gardens at Ranelagh, then about to become a fashionable pleasure resort, led the architect William Jones to attempt an adaptation of the Pantheon. Inaletto made drawings of it in 1751. It was pulled down in 1805. In fact, a passion existed about this time for buildings of circular form. Gibbs had previously attempted to get a circular church approved for St. Martin's-in-the-Fields without success, but at Oxford he achieved the Radcliffe Library. This obsession for circular buildings can be attributed to the study of like Roman structures, but it must be remembered that Wren had previously suggested a circular form for libraries.

George Dance the elder completes the list of the coterie who practised during the formative period of the Roman phase and who zealously carried on the vernacular tradition. He was born in 1698, and is said to have begun his career in a shipyard. In 1733 he was nominated by the Corporation of the City of London to the office of Clerk of the City Works; the appointment was confirmed in 1735. With Wren's City churches before him as models he designed the following churches:

St. Luke's, Old Street (1732-33); St. Leonard's, Shoreditch (1736-40); St. Matthew's, Bethnal Green (1740-46); St. Stephen's, Aldgate (1745). Between the years 1739-53 he designed and erected the

Mansion House as an official residence for the Lord Mayor. When the idea for this building was first mooted Lord Burlington was applied to for plans and submitted an original design by Palladio. A member of the Common Council asked "Who was Palladio?" Was he a freeman of the City and was he not a Roman Catholic? Burlington's Palladian design was thrown over and that of Dance chosen, which caused the noble lord to vent his rage in sneers at the completed design. As originally designed, the building carried twin erections above the attic storey, and was really a far more effective composition than it is to-day; but much critical ink has been spilt over the design and reason of these features, which one writer dubbed facetiously "The Mare's Nest." Dance was engaged on many City improvements. He built the Surgeons' Hall in the Old Bailey, the original Corn Exchange, Mark Lane, and the west wing to the entrance front of the stone façade to Guy's Hospital. It is not widely known that the fine group of sculpture in the tympanum of the pediment at the Mansion House was carved by the young sculptor Taylor (afterwards famous as Sir Robert Taylor the architect).

Reproduction or Creation?

Following the practice that architecture begets architecture, the mature phase of the Roman Palladian school was evolved. It is so often the mistaken practice among architects of the present day to select a certain period of the tradition for exploitation—this policy can only result in a partial understanding of the real meaning of architecture—it is a method followed by every reproducer of antique furniture. The object is there, faithful even to the grain in the wood, but the creative fire is lacking; careful investigation of the period under analysis and even of the individual structures which go to its making reveals the fact that in no single instance does the model represent an actual copy of the antique prototype. One or two of Palladio's villas may have supplied the basic idea for new structures, but generally speaking the impress of the time has faithfully left its mark on the work; whatever its antecedents, it became acclimatised to the English soil.

In spite of further and more important discoveries in the realms of Classic art, the Palladian system of proportioning was continued at the same stately gait, marshalled by each succeeding group of artists. The system of academic composition was extended to embody further principles, the greater advance in taste being in the planning and decoration of buildings.

Provincial Exponents of the Academic.

In the careers of the Woods, of Bath (father and son), we have to deal with the work of two architects who practised at a remote distance from the academic centre at London. But their work is far from provincial. The whole of Bath reflects their labours. Wood the elder was a native of Yorkshire, and in 1727 began his career at Bath as a road surveyor. Later, assisted by the liberality of Ralph Allen, he designed the majority of the streets and crescents of the city. In 1727 he built Ralph Allen's town house and in 1729 he began Queen's Square. Only the north side was completed during his lifetime. Wood's design for the magnificent Prior Park is the most representative of his academic works. It was designed for Ralph Allen in 1736, and was in course of erection for seven years. Wood also designed the Royal Circus. The Exchange at Bristol next occupied his attention

(1740-43) and in 1748-55 he built the Town Hall at Liverpool.

The younger Wood was closely associated with his father in the rebuilding of Bath. He completed the Royal Crescent in 1769, and began the New Assembly Rooms in the same year.

Carr of York, who carried on a large practice in the North of England, was born in 1723 and died in 1807. His career is analogous to that of Wood of Bath. His early life was passed as a working mason, but settling in the City of York he became famous as an architect. His first acquaintance with the realities of practice came while he was acting as contractor, or clerk of works, at Kirby Hall, Yorkshire, which he erected from the designs of Morris in 1750. His public works comprise the Court House at York, the splendid Crescent at Buxton, and the Town Hall at Newark.

SPECIAL LEGAL REPORTS.

Strand Improvement: Party Wall Dispute.

Appenrodt v. The London County Council.

November 26. Chancery Division. Before Mr. Justice Eve.

This was an action by Mr. Hermann Appenrodt against the London County Council, claiming a declaration that the wall now being the east or flank wall, being the external wall of the premises 75, Strand, commonly known as the Adelphi Stores, was the property of the plaintiff, that such wall was not and never was a party wall, and that the defendants had no estate or interest in such wall; that pursuant to an agreement of November 30th, 1911, made between the parties in relation to the said wall and premises, the plaintiff was discharged from all obligations thereunder imposed, and of a declaration that plaintiff was entitled to use certain windows.

Mr. Macmorran, K.C., Mr. Clayton, K.C., and Mr. Ribton appeared for the plaintiff, and Mr. Maugham, K.C., and Mr. Attwater for the defendants.

By a lease of December, 1898, 75, Strand, and certain vaults were demised to one Burney for a term of sixty years at £500 a year. In 1911 plaintiff became possessed of the premises for the residue of the term. Plaintiff said that owing to the Strand Improvement Act, 76, Strand, and other premises were required, and by reason of these improvements the eastern wall of his premises was now an external wall throughout its whole height and depth, and he claimed a declaration accordingly, and other relief.

Defendants by their defence set up that the wall was a party wall.

His Lordship, after hearing the expert evidence and the legal arguments, gave judgment.

His Lordship said the substantial question involved in this case was the ownership of a wall which formerly separated the premises Nos. 75 and 76, Strand. The defendants were the owners in fee of so much of the site of No. 76 as under the Strand Improvement Act, 1896, had been thrown into the widening of the thoroughfare. The plaintiff was in occupation of No. 75 for a term of years which would expire in the year 1957. The widening of the Strand authorised by the Act stopped short at its western end at No. 75, Strand, and the effect had been to have the eastern wall, the flank wall of No. 75, projecting at a right angle from the new Hotel Cecil into the widened thoroughfare for a distance of some 26 ft. Plaintiff alleged that

the whole of this projecting wall was included in his demise, that the wall was his, and that it was the exterior or external wall of No. 75. Plaintiff said that neither the defendants nor their predecessors in title had any estate or interest in it, and he claimed that he was entitled to open windows or construct a return shop-front in the projecting wall or use it for the beneficial occupation of his premises, and the plaintiff asked for a declaration which would give him these privileges and place him in that position. Defendants claimed the whole of the wall, or at least the part of it he had alluded to, as their property, viz., the projecting wall. At the bar they did not put their claim as high as that, and they contented themselves with the assertion that they were entitled, as tenants in common with the plaintiff or owner of the freehold interest in No. 75, to an undivided moiety of the wall projecting, or the major portion of it. The practical result was that the main issue which he had now to decide was whether this projecting wall was a part of No. 75 only, or whether the defendants had any property or estate or interest therein. The case had been conducted with extreme care and elaboration. As far as he could say, these two houses were erected contemporaneously between the years 1770 and 1775, and except that the fronts had undergone re-construction the two houses practically remained the same till the demolition of No. 76 in 1896. No. 75 was erected on the Durham Estate and No. 76 on the Salisbury Estate. The first conclusion he arrived at was that the eastern wall of No. 75 was built wholly on land belonging to the Durham Estate. He could not draw the conclusion that this wall was built at the joint expense of the two estates. But these conclusions did not carry the plaintiff very far. There were physical conditions to be considered which had remained the same for 175 years, until No. 76 was demolished. Somewhere about 1895 there was an award under the Building Act, and the award stated that the wall was a party wall and was not the sole property of No. 75. Taking into consideration this and other things proved in the case, he came to the conclusion that the plaintiff had failed to make out his case that he was still the owner of the wall, or that the defendants had no estate or interest in it. If the plaintiff desired to have the extent of that right determined he would do so, but if that course was not desired the proper course was to dismiss the action with costs. The plaintiff had come for a declaration and he could not make it, and the matter must rest there.

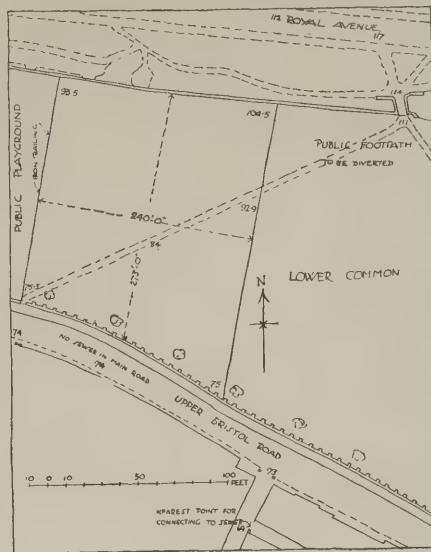
Mr. Maugham did not ask to have his interests determined. They had only been resisting the action, and they did not know what the further attitude of the defendants might be.

Action dismissed with costs.

COMPETITIONS.

Proposed New Secondary School, Bath.

Designs are invited for the erection of a mixed school at Bath to accommodate 250 children. Mr. Henry T. Hare, F.R.I.B.A., has been appointed assessor, and the author of designs placed first will be appointed architect to the school unless it is found, when tenders are received, that the cost will exceed his estimate by more than 10 per cent. If the work be not proceeded with within twelve months of the award the architect will receive the sum of £100. to form part of his commission. In the event of the scheme



SITE PLAN, BATH SECONDARY SCHOOL COMPETITION.

being abandoned, he will receive the further sum of £25 in full discharge. The author of the designs placed second will receive a premium of fifty guineas.

The designs, which must be prepared in accordance with the Regulations of the Board of Education, should carry out the following requirements:

The school is to be a mixed one except in regard to class rooms and separate entrances; cloak rooms and lavatories should be provided. The elevations should be faced with stone and should harmonise with the traditional architecture of the city. The floors and staircases should be of fireproof construction. Designs are to be accompanied by a report giving particulars of periods and construction, with an estimate of the total cost of the building. This estimate is to be exclusive of fittings, furniture, playgrounds, fencing, etc., but is to include heating and wiring for electric light. The cubic contents of such portion as competitors estimate can be erected for a sum of £8,000 should be given. All class rooms are to be arranged so that they may face the sun at some portion of the day.

Accommodation Required.—(a) Four class rooms for thirty pupils; (b) three class rooms for twenty-five pupils; (c) two class rooms for twenty pupils; (d) assembly hall to seat 250 persons and to be available for use as an art room; (e) chemical laboratory for twenty-five, with store; (f) physics laboratory for twenty-five with store; (g) domestic economy room, 700 ft. super., to serve also as a dining-room; (h) library about 400 ft. super., to serve also as a committee room; (i) manual training room for twenty; (j) headmaster's room; (k) senior mistress's room; (l) assistant masters' room; (m) assistant mistresses' room; (n) gymnasium about 1,250 ft. super. (this may be a detached building of simpler construction); (o) general store room for books, stationery, etc.; (p) two bicycle sheds for thirty each; (q) lavatory and cloak-room accommodation sufficient for 125 of each sex. The girls' cloak room should be somewhat larger than the boys'.

Drawings.—(a) Block plan to a scale of 32 ft. to 1 in., the buildings to be distinguished by a red wash; (b) a plan of each floor; (c) elevations of the front and one end; (d) sufficient sections to illustrate the design; (b), (c), and (d) to a scale of 8 ft. to 1 in. The plans must show by a yellow wash over the floor areas which portion of the buildings competitors estimate can be erected for the sum of £8,000 exclusive

of fittings, furniture, etc.; the remaining portion to be tinted light blue.

Questions relating to the competition be received by the Town Clerk, Guildhall, Bath, not later than December 15th, 1913. Designs to be sent in not later than January 31st, 1914.

Residential School for Defective Children, Durham.

Durham County Council invite competitive plans for a proposed residential school for defective children at Glake Hall near Durham. Conditions of the competition may be had on application to the Clerk to the Education Committee, Shildon Hall, Durham.

Carnegie Library, Oswaldtwistle.

The assessor in the above competition has awarded the premiums as follows: First (£30), Mr. F. Quentery Farmer, Stalybridge and Coventry; second (£20), Mr. Leonard G. Hanaford, of Rock Ferry.

Clock Tower, Brighton.

Brighton Council invite tender design for a clock tower to be erected in Queen's Park at a cost (including the clock) not exceeding £1,000. Conditions of competition can be obtained from Hugo Talbot, Town Clerk, Town Hall, Brighton.

St. Paul's Bridge.

At a meeting of the City Corporation last week, in answer to a question relating to the proposed architectural treatment of St. Paul's Bridge, Mr. J. R. Pakema, chairman of the Bridge House Estates Committee, replied that it was proposed to invite British architects to send in designs. In the advertisement premiums would be offered of £300, £200, and £100 for the designs placed first, second, and third. Sir William Emerson, who would act in conjunction with the committee assessor.

OBITUARY.

Mr. A. W. Lee.

The death has occurred of Mr. A. W. Lee, building surveyor under the Public Works Department of the Birmingham City Council. Mr. Lee died in the General Hospital from injuries sustained in being knocked down by a taxicab.

Mr. F. T. Cutbill.

We regret to announce the death of Mr. Frederick Thomas Cutbill, which occurred on November 22nd at his residence, Beckenham. Mr. Cutbill, who was seventy-eight years of age, was a director of Messrs. Claridge's Patent Asphalte Co., Ltd., for thirty-nine years.

Mr. Ambrose Heal.

Mr. Ambrose Heal, of Nower Hill, Pinner, and of Messrs. Heal and Son, Ltd., of Tottenham Court Road, W., died on October 10th, aged sixty-six, leaving an estate of the gross value of £73,501.

Mr. James Jerdan.

The death is announced of Mr. James Jerdan, architect, senior partner of the firm of Messrs. J. Jerdan and Son, Edinburgh. Mr. Jerdan, who was native of Roxburghshire, went to Edinburgh about thirty-eight years ago to obtain an appointment with Messrs. Wardro and Reid, architects. Twenty-five years ago he started to practise by himself. He was for twenty-five years lecturer on architecture and building construction at the Heriot-Watt College, which position he resigned, on account of failing health, at the close of last session.

CONCRETE AND STEEL SECTION.

(MONTHLY.)

A SIMPLE METHOD OF DETERMINING THE MOMENT OF RESISTANCE OF REINFORCED CONCRETE BEAMS.

BY W. LUCAS, A.R.I.B.A.

THE equations for finding the theoretically true moment of resistance of doubly reinforced "T" beams are so unwieldy that in practice they are never used (at least, by men who have much work to do), the usual procedure being to use a shorter equation only approximately true and still very long. The following partly graphic method is theoretically true, and it will give results to as fine a degree of accuracy as one can draw and measure, which is a much finer degree than will be obtained in the actual work.

We will accept Hooke's law that within working values stress is proportional to strain. In the particular examples which follow the usual value (15) for E_s is assumed, "E" representing the respective moduli of elasticity for steel and concrete. Any other value for this ratio can be assumed, and the method to be explained will apply with but very slight modification.

It is convenient to use squared foolscap

paper and generally to draw to half full size, with which scale most diagrams will fall within the limits of a sheet of foolscap.

We must first get a clear idea of the "equivalent section." It may be described as being an imaginary section, having the same moment of resistance as the real section, but composed of material with one modulus of elasticity throughout. Imagine the steel replaced by some material of fifteen times its sectional area having the extra area made up by an increased width, the depth and distance from the neutral axis remaining as before: let this material be only one-fifteenth as stiff as the steel; it would then do the same work as the steel, taking up the same total stress, and it would have the same "E" as the concrete.

If we also imagine the concrete below the neutral axis to be omitted we have in mind a complete picture of the "equivalent section." In Fig. 1 are shown various actual sections with their corresponding equivalent sections, which will help to

make this clear. It is to be noted that the area of the compression steel is multiplied by 14 (although the stress in it is fifteen times that in the surrounding concrete). This is because no deduction is made, in considering the concrete area, for the hole in it occupied by the steel.

In practice there is no need to draw this equivalent section; it is simply a very helpful idea.

There are two advantages in dealing with the equivalent section instead of the actual one. First, the neutral axis passes through the centre of gravity; and second, we can draw a straight line stress diagram, as will be seen later.

We will now take particular cases, starting with the simple and passing on to the more complex.

Case 1.—Rectangular Beam—Singly Reinforced.

Take as an example the beam "A" in Fig. 1. To find the neutral axis we have to find a line "N.A.," such that the moment about this line of the area

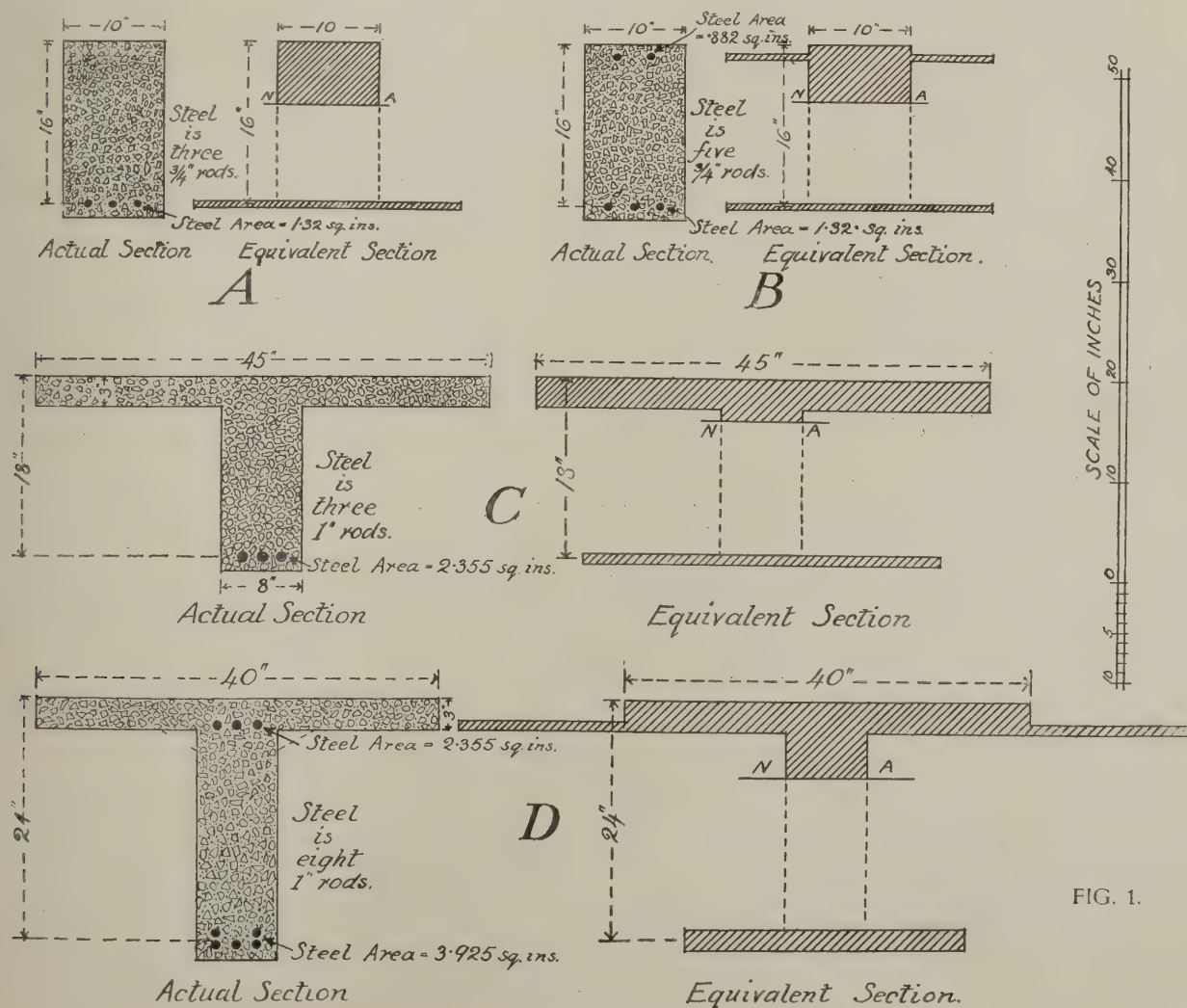


FIG. 1.

above it is equal to the moment about it of the equivalent area of steel below. The only area below it will be one which is fifteen times the area of the steel, viz., $1.32 \times 15 = 19.8$ sq. in. The moment of this area about a point 10 in. above its centre is 198. Now, referring to Fig. 2, plot the following lines AB to represent the compression edge of the concrete; CD 16 in. below it to represent the centre line of the steel. Take any convenient base line towards one side of the diagram such as AC and at a height of 10 in. from C. Plot a point E 198 units to the right, using any convenient scale. Draw CE. The ordinates measured at any axis in the beam from base AC to this line CE represent the moment of the equivalent steel area about that axis. For instance, the moment at 2 in. above the centre line of the steel is nearly 40, and 2 in. below the compressed edge of the concrete is 276.

Now plot a graph for the moment of the concrete area about any axis, beginning this time at the top. This will not be a straight line as was the last. It is not really necessary to plot more than 3 points, but let us in this case plot points at every successive inch of depth. The moment of any rectangle about its bottom edge is $\frac{bd^2}{2}$. Take an imaginary axis 1 in.

from the compression edge. The area above this axis is 10 in. wide and 1 in. deep, and its moment about its bottom edge is $\frac{10 \times 1 \times 1}{2} = 5$.

Making a table for the other cases—

At 2 in. from top edge	moment	=	$10 \times 2 \times 1$	=	20
" 3 "	" "	"	$10 \times 3 \times 1.5$	=	45
" 4 "	" "	"	$10 \times 4 \times 2$	=	80
" 5 "	" "	"	$10 \times 5 \times 2.5$	=	125
" 6 "	" "	"	$10 \times 6 \times 3$	=	180
" 7 "	" "	"	$10 \times 7 \times 3.5$	=	245

Plotting these values and drawing a curve through them, we find the curve cuts the original graph at 6.22 in. from the top edge. This is the position of the neutral axis, because at this point readings on both graphs are the same and the moments of areas above it are equal to the moments of areas below it.

There are three definite stages in any calculation of the moment of resistance. They are (1) to find the neutral axis, (2) to find the lever arm, and (3) to find moment of resistance. We have done the first stage of the simplest case. We will pass on and do the first stage of all the cases and then return and do the second and third stages throughout.

Case 2.—Rectangular Beam—Doubly Reinforced.

Take the same beam as in Case 1, but with the addition of two $\frac{3}{4}$ -in. rods near the top, as shown at B, Fig. 1.

To find the neutral axis (see Fig. 3), plot first the graph (marked 1) as before, representing the moments of the tension area. Then plot the graph (marked 2) representing moments of the compression steel equivalent area. This area is 12.35 sq. in., so that its moment about an axis 10 in. below its centre line will be 123.5 inch-units. Plot this measurement to the point F and draw through F the straight line graph marked 2. Now plot the graph (marked 3) representing moments of the concrete area. The ordinates will be the same as found for the last example (Case 1). It will only be necessary to plot three. Take those at 4 in., 5 in., and 6 in. respectively from the top and their corresponding moments are 80, 125, and 198. Plot these points, taking care to measure them from the graph marked 2 and not

from the base line. This is important, as obviously this moment is *additional to the* moment of the equivalent compressional steel area. The neutral axis passes through the point where graph 3 cuts graph (1). The complete graph (3) has been drawn in this case, but this is not necessary in practice.

Case 3.—"T" Beam—Singly Reinforced (As Shown at C, Fig. 1).

The steel in this case is three 1-in. rods, having a sectional area of 2.355 sq. in. and an equivalent area of 35.32 sq. in. (Refer to Fig. 4.) Plot the graph marked 1 for the moments of this area as before by finding one point E in it and drawing a straight line through it. Now, ignoring the web, take moments of the slab about some convenient point; in this case a point 3 in. down from the centre of the slab is taken. The slab area = $45 \times 3 = 135$, and the moment of this area about an axis 3 in. below its centre is 405 inch-units. Plot this point at F and draw through it the straight line graph 2. Where this line cuts graph 1 is not exactly the neutral axis unless it happens also to coincide with the bottom of the slab. If, as in this case, it cuts graph 1 below the slab, we have a small piece of web to consider. Its moments of area about axes 1 in. and 2 in. below slab are respectively $8 \times 1 \times \frac{1}{2} \text{ in.} = 4$ and $8 \times 2 \times 1 = 16$.

Plot these two points measuring from graph 2 and through them draw graph 3. Where this cuts graph 1 is the neutral axis. As graph 3 is not a straight line it is as well to find three points in it in one's early examples. A third point is at G, where graph 2 cuts the bottom of the slab, because the moment of area of web above this axis is 0, and therefore the ordinate between graph 2 and graph 3 at this point is 0.

A different case arises when graph 2 cuts graph 1 within the thickness of the slab. When this happens we simply proceed with the case in the same manner as Case 1, for we now have a beam with an equivalent section exactly similar to that of a rectangular beam with single reinforcement and a width equal to that of the table of the "T" beam.

Case 4.—"T" Beam—Doubly Reinforced (As shown at D, Fig. 1).

Referring to Fig. 5, draw graph 1 by the method already explained. Draw graph 2 for the compression steel as explained for Case 2. The area of steel in this case is 2.355 and equivalent area = 32.97. Draw graph (3) representing moments of the table area; this area in the present case is $40 \times 3 = 120$ sq. in., and its moment about a point 5 in. below centre of table is 600 as shown. There will be an angle in this graph where it crosses the centre line of compression steel, therefore another point in it must be found by taking moments about another axis, or it may be drawn by producing graphs 2 and 3, as shown by dotted lines. Next draw graph 4, representing moments of the web as explained for Case 3. Three points have been calculated at 3 in., 4 in., and 5 in. down from the bottom of the slab, their respective moments being 36, 64, and 100. Where this graph cuts graph 1 is the position of the neutral axis.

Occasionally a more complicated case than this will occur, such as a continuous beam near a support, where there may be reinforcement at three different levels. But this should present no difficulty now that the method is explained.

Having completed the first stage (*i.e.*, finding the N.A.) in each case, we now pro-

ceed to the second and third stages (*i.e.*, to find the lever arm and the moment of resistance).

Case 1.—Fig. 2.

Let us first draw a stress diagram. Draw a vertical base line across near the centre, call the point where this crosses the N.A. "P." Draw another line such that ordinates from the base line to it to represent the stress in the beam at that point. As there is no stress at the N.A. the line will pass through P, and, as in the equivalent section the material has one modulus of elasticity throughout, the stress at any point will be directly proportional to its distance from the neutral axis, the line will therefore be straight.

Using any convenient scale, plot 600 lb. (being the assumed maximum allowable stress on the concrete), as shown in Fig. 2 at the top of the diagram. Draw from this point through P and produce the line to cut the centre line of the steel at Q. This is the line forming the stress diagram. Scaling from Q to the base line, we find the stress here to be 943 lb. per sq. in. This is the stress on the equivalent section. The stress on the actual steel will be fifteen times as great—viz., $943 \times 15 = 14,145$ lb. per sq. in., because its modulus of elasticity is fifteen times as great. If we assume 16,000 lb. per sq. in. as the maximum allowable stress on steel, we see that in this case the concrete would become overstressed before the steel, and the stress in the concrete is therefore the determining factor. If we had found that the stress in the steel came to more than 16,000 lb. per sq. in., we should have been obliged to alter our stress diagram by plotting $\frac{16,000}{15} = 1,065$ lbs. on the centre of

steel line, and drawing through this new point Q and P, thus getting a correct stress diagram. But we can find out which stress to plot without first drawing a diagram. When the neutral axis falls in a certain position the stresses in the steel and concrete are both the maximum allowable. With the stresses we have assumed this position of the N.A. is at a distance equal to .36d from compression edge of beam. We can easily see whether the neutral axis is above or below this position by laying any convenient scale across our drawing and adjusting it, so that 0 comes on compression edge and 10 on the centre of steel line, then observing the position of the N.A. in relation to the 3.6 mark. If it comes above this mark the stress in the steel is the determining factor, and if below then the stress in the concrete is the determining factor. We always plot the maximum value allowable for the determining factor to get our stress diagram.

Many writers mention an economic percentage of steel which produces the maximum allowable stresses in both concrete and steel, but it is better to remember the economic or critical position of the neutral axis, for this is the same in any type of beam, whereas the economic percentage of steel given as .00675 is a guide for only one type of beam. The resultant of the compression stresses acts at the centre of gravity of the triangle RSP, which is at one-third the distance to the neutral axis from the top of the beam. The lever arm is always the distance between the resultant compression and the resultant tension, and in this case it scales 13.95 in. The moment of resistance equals the lever arm multiplied by either the total tension or total compression, which must equal each other. It is a check upon the position of the neutral axis to see if they do so.

The total tension = $1.32 \times 14,150 = 18,678$ lbs.

The total compression = $\frac{600 \times 10 \times 6.22}{2} = 18,660$ lbs.

This shows an error of only 0.1 per cent.; a calculation in error to ten times this amount would still be sufficiently accurate. The moment of resistance then = $18,670 \times 13.95 = 262,260$ in.-lbs.

Case 2.—Fig. 3.

The neutral axis happens to fall upon the 0.36d position, therefore both materials will work together at maximum stress. Notice that the compression steel

is never a determining factor because it cannot be stressed to its safe working stress without the surrounding concrete being overstressed.

The resultant of the compressive stress on the concrete acts at one-third the distance from the top to the neutral axis, and

$$\text{equals } \frac{600 \times 5.75 \times 10}{2} = 17,250 \text{ lbs.}$$

Draw its line of action as shown. Scale off the stress in the equivalent compression steel area—i.e., 315 lb. per sq. in., acting upon 12.35 sq. in., the total stress on this area will be $315 \times 12.35 = 3,890$ lb.

Find the line of action of the resultant

of the compressive stresses in the concrete and steel as shown: this fixes the upper end of the lever arm.

The total stress in tension steel = $1.32 \times 16,000 = 21,120$ lb. The total compressive stress = $17,250 + 3,890 = 21,140$ lb. (Error only 0.1 per cent.)

The moment of resistance will then be $21,130 \times 13.9$ in. = 293,900 in.-lb.

Case 3.—Fig. 4.

This time the N.A. is above the 0.36d level, so that the stress in the steel is the determining factor. Set out the stress diagram RQ, SW, by drawing first the base line, plotting Q and drawing through

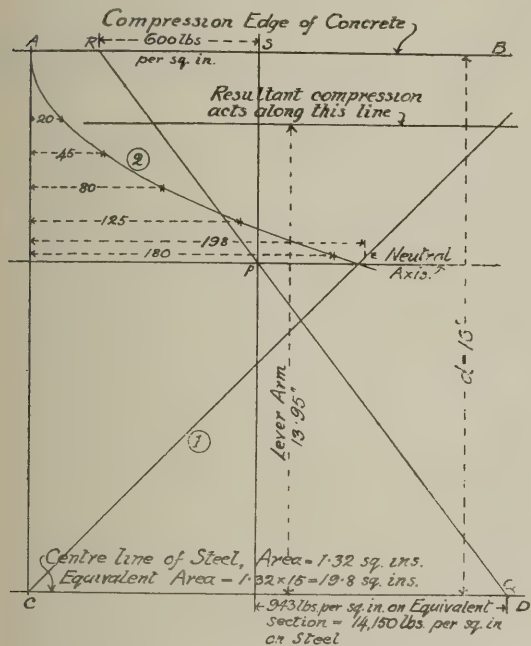


FIG. 2 LINEAR SCALE OF INCHES FOR ALL FIGURES.

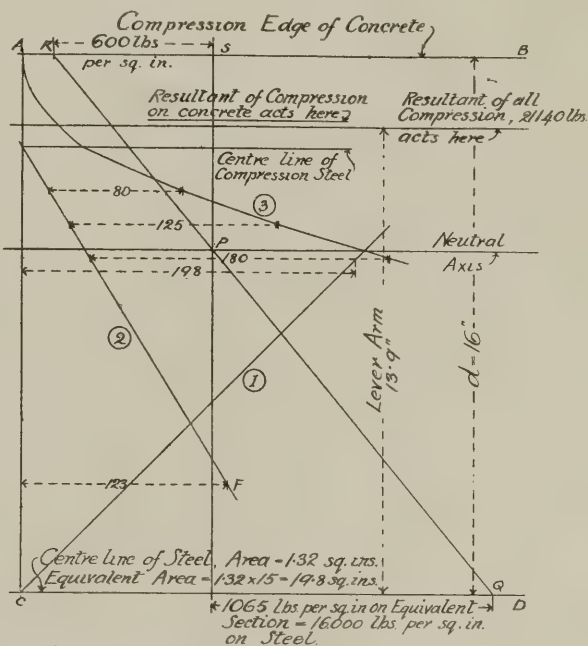
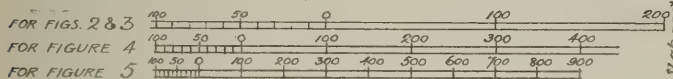


FIG. 3

SCALES FOR MOMENTS OF AREA



STRESS SCALE FOR ALL FIGURES.

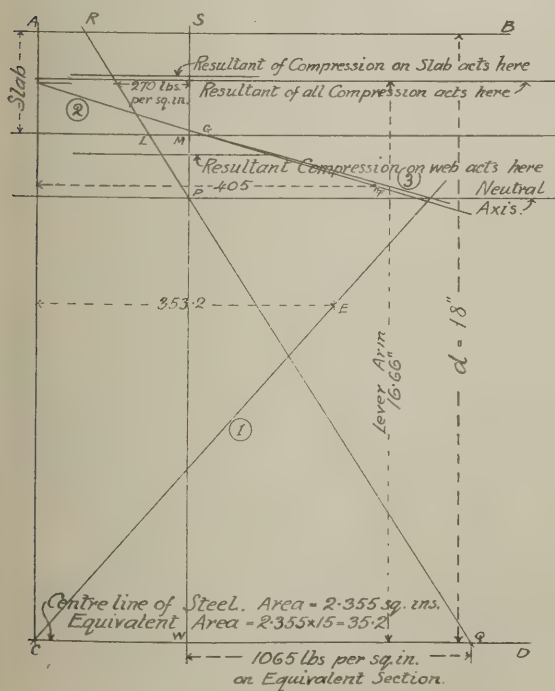
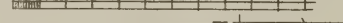


FIG. 4

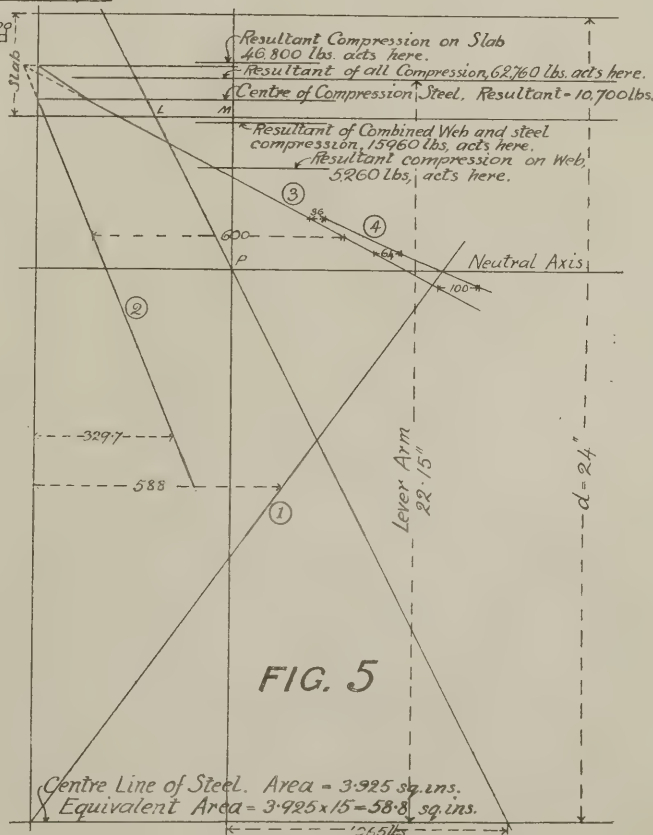


FIG. 5

P. We find by scaling that the average stress on the slab is 270 lb. The total stress on the slab is $270 \times 3 \times 45 = 36,450$ lb. The resultant of this acts through the centre of gravity of the area RL.S.M.

The total stress on the web =

$$\frac{150 \times 1.86 \times 8}{2} = 1,116 \text{ lbs.},$$

its line of resultant action being at the centre of gravity of triangle L.M.P. Now find the position of the resultant of these two forces which fixes the length of the lever arm, viz., 16.66 in. The total compression = $36,450 + 1,116 = 37,566$ lb. The total tension = $2,355 \times 16,000 = 37,680$ lb. (Error about 0.3 per cent.) The moment of resistance will be $37,680 \times 16.66 \text{ in.} = 627,700 \text{ in.-lb.}$

Case 4.—Fig. 5.

The stress in the steel is the determining factor. Plot the stress diagram. To find the position of the resultant of total compression find the total compression and its resultant line of action for the slab, the steel, and the web respectively, then find the position of the resultant of these three forces. The distance between the line of the final resultant and the centre line of tensional steel represents the lever arm. Total stress on slab = $390 \times 3 \times 40 = 46,800$ lb., acting along the line as shown in the figure. Total stress on compressional steel equivalent area = $32.9 \times 325 = 10,700$ lb., acting along centre line of steel. The stress on the web = $290 \times 4.54 \times 8 = 5,260$ lb.,

acting through the centre of gravity of triangle L.M.P. The total compression = $46,800 + 10,700 + 5,260 = 62,760$ lb., acting along the line shown. The total tension = $3,925 \times 16,000 = 62,800$ lb. (error 0.064 per cent.). The lever arm scales 22.15 in. The moment of resistance = $62,800 \times 22.15 = 1,390,000 \text{ in.-lbs.}$

When the slab is thickened at its junction with the web as shown in Fig. 1 D by dotted lines, there exist two small triangles which have not been taken into consideration. It is the usual custom to ignore these, thus involving an error of 1 or 2 per cent. on the safe side.

CONCRETE INSTITUTE MEMBERSHIP.

The membership of the Concrete Institute on May 8th last was 1,006, consisting of 947 Members, 37 Students, 6 Special Subscribers, and 16 Hon. Members. There are a number of applications at present in hand which, before the end of the year, should break all former records. The conditions for membership have been altered by the Council, and proposals for the alterations of the Rules are part of the scheme by which it is hoped to raise the status of the Members and to render the Institute of greater service both to the Members and to the public. In accordance with the decision of the Council, now that the membership has reached 1,000, an increased scale of fees has been put into operation, the chief increase being in respect of the Membership class. In addition, a new class of Associate-Members has been created. The proposals do not affect those who joined under the former rules and regulations of the Institute; that is to say, the earlier Members will continue to pay their old rates of subscription and be entitled to the new privileges. It is hoped that the regulations for the proposed examination in structural engineering for the admission of Graduates will be in force early next year.

REINFORCED CONCRETE AT LIVERPOOL CATHEDRAL.

[Specially Contributed.]

The desirability of avoiding, wherever possible, the use of timber or other inflammable materials is becoming increasingly recognised as a matter of first importance, and more especially so in the case of buildings of a special character and in which permanence is essential. The avoidance of such risks was the chief consideration that influenced the architect, Mr. G. Gilbert Scott, in employing reinforced concrete in the construction of the roofs at Liverpool Cathedral. The total displacement of all timber is not within the range of possibility in practical building, and, to an architect, is probably unthinkable; but in all the first-class buildings of to-day the use of it as a main constructive unit is almost entirely superseded by materials of a more fire-resisting nature. With our better knowledge of materials and their application, we have greater opportunities in this respect than the architects of old time, who, in putting timber raft foundations and timber roofs and constructional members in our great cathedrals, failed to realise the heritage of trouble and expense they were bequeathing to later generations.

We have a typical example of the nature of the risk from fire in the partial destruction a few years back of the roof over the old Selby Abbey. Westminster Hall provides a prominent instance of further risks resulting from the action of dry rot and decay. This affords a good example of the trouble experienced in the course of years with timber work, but no suggestion is intended that it would be either practical or desirable to construct such a type of roof in reinforced concrete. It goes to prove, however, the desirability of superseding timber in all such positions in a building where its æsthetic value is not required, a wise discrimination which has been given practical effect at Liverpool Cathedral.

The amount of reinforced concrete work used in the cathedral structure is comparatively small. It comprises the chapter house and choir roofs and some flat roofings over the small towers. These latter are octagonal on plan and are finished by stone turrets in the form of pyramids, which are carried by the reinforced roofing. The clear width of the towers is about 11 ft. 3 in., and each is spanned by four beams, running in pairs at right angles, and interlacing one another about 15 in. from the wall face. Small beams having similar dimensions are carried diagonally across the corners of the square thus formed. These beams carry the stone turrets, and the enclosed octagon is left open.

The roof over the choir has a clear span of 50 ft. 4 in., with a somewhat shallow pitch, the inclination from the horizontal being 26 deg. The total length is 136 ft. 6 in., and the whole forms an external roof above the choir vaulting. The system of construction adopted is similar, on a larger scale, to that usually employed in ordinary timber roofs. The roof space is divided longitudinally into three compartments by transverse walls 2 ft. 3 in. thick, each compartment having a clear length of about 38 ft. At the east end there is a smaller compartment 14 ft. 7½ in. in the clear. The transverse walls take the place of principals, and the intermediate spans are bridged by ridge and purlin beams. These carry the smaller rafter beams, which have a span of about 14 ft., are spaced 8 ft. apart, and in

turn support the general roof slab. The whole forms in reality an ordinary beam floor construction, arranged in two inclined planes. The ridge and purlin beams were designed as continuous over three spans, their depth being 3 ft. 3 in. at the supports and 2 ft. 3 in. at the centre of the spans. The small bay at the east end is constructed with a single system of purlin beams spaced 7 ft. apart. The ends of all the main reinforcing bars are hooked over to ensure a good anchorage, and the web tension bars are carried completely around the main reinforcement and turned down into the centre of the beam at the top. Where no top metal is required for compressional strength, constructional bars ½ in. diameter are provided. The centering to the underside was wrought, and the surface will be left without any further finish. The external surface has been prepared to receive copper sheeting, hardwood slips being built into the slopes to provide fixing.

The most interesting roof is that which covers the circular chapter house. (Working drawing of it is shown on the double-page plate in this issue.) The building has a clear diameter of 31 ft. at the roof springing, and the walls are 1 ft. 9 in. thick. An internal stone gallery encircles it just below the roof, supported by arches springing from the walls beneath. Although of ample strength to withstand the thrust thus put upon them it was considered best that the walls should be relieved of all possible chance of additional thrust from the roof above. The internal dome has a radius of 16 ft. and rises 11 ft. above the springing, being 30 ft. 6 in. in diameter at that level. The height externally from the springing, the apex of the cone is 22 ft. 6 in. To provide against the possibility of thrust the roof is encircled at the base with a series of ¾-in. diameter bars, each in five lengths, for convenience in handling, with lapped joints of sufficient length to develop the full strength of the bar. For extra security the ends are hooked and the lap securely wired together for their whole length. The whole roof is thus transformed into so much dead weight to assist the walls below. The remaining details and reinforcements are clearly shown on the plate given in this issue. The vertical hardwood slips bedded in the external slopes are in this case provided with hook iron anchor slips for greater security. The roof will be finished with copper. The fact that these roofs are now completed is evidence of the rapid progress being made towards the completion of the cathedral.

SCIENCE MUSEUM AT SOUTH KENSINGTON IN REINFORCED CONCRETE.

H.M. Office of Works has recently put out to competition a large building for the new Science Museum at South Kensington. The principal portion of the structure—foundations, pillars, and floors—is to be in reinforced concrete. A certain number of contractors specialising in various systems were invited to compete for the work, and we are informed that the contract has been secured by Messrs. Lea and Co., Ltd., of Kensington Square, London, licensees of the Coignet system on a scheme prepared by Messrs. Edmond Coignet, Ltd., of Westminster, who have been appointed for the preparation of the plans and technical information. This is the third large building which Messrs. Edmond Coignet, Ltd., have designed their system for H.M. Office of Works.

SOME PRACTICAL ASPECTS OF REINFORCED CONCRETE.*

BY E. P. WELLS, PRESIDENT OF THE CONCRETE INSTITUTE.

L.C.C. Regulations for Reinforced Concrete.

THE Institution of Civil Engineers, the Royal Institute of British Architects, and the Surveyors' Institution, have all been furnished with our preliminary suggestions for the revision of the L.C.C. regulations for reinforced concrete construction, and the Concrete Institute is now awaiting observations from those societies before it makes its representation to the Local Government Board.

The matter is an extremely important one, because these regulations, the first to be officially adopted in this country, no doubt will set a standard for the whole of Great Britain, and may, perhaps, have influence in Greater Britain. As the matter is *sub judice*, I make no comments on the proposed regulations, but it may at least be said that some of the requirements proposed by these regulations in their present form are very onerous. After these regulations come into force, I have no doubt the members will be asked to express their opinions. When this will be I cannot say.

The Reinforced Concrete Practice Committee has drafted some suggestions for standard methods of measurement for reinforced concrete work which were considered for the first time on October 30th at a joint meeting of the committee, the members of the Concrete Institute who are quantity surveyors, and of representatives of the Quantity Surveyors' Association. It is expected that a joint report by the Quantity Surveyors' Association and the Concrete Institute will eventually be made with a view to securing standardisation in the matter. The committee has, in addition, a great many other subjects under consideration, and it is preparing jointly with the Science Standing Committee (1) a standard specification for reinforced concrete work and (2) suggestions for standard connections and joints in reinforced concrete work. Another important matter which it has in hand is the preparation of the report giving advice to superintendents of concrete work. These matters will probably be reported upon this session, and a meeting has been arranged for their discussion at a general meeting.

The Science Standing Committee has been revising its standard notation for calculations for structural engineering generally and for reinforced concrete in particular. The revision of this notation is almost ready for publication, and will appear shortly in the Transactions. The committee is also proposing to make suggestions for the amendment of the standard specification for cement and towards the co-ordination of the standard specification for structural steel of all kinds.

The Joint Committee on Loads on Highway Bridges is almost ready to report upon the matter which it has in hand, and it is expected that its work will be brought to a conclusion this session.

The Quality of Cement.

I wish to direct your particular attention to the absolute necessity of keeping a more careful watch on the cement than has hitherto been the case, especially as regards its storage on the site, though it is necessary, also, to be assured of its quality before it reaches the site of the works, both as it leaves the manufacturers and

goes to the agent, and as it leaves the agent for the consumer.

It has come to my knowledge during the past year that in several cases where it was necessary that cement should be of an excellent quality it had been "air slaked" to such an extent that it was next door to being absolutely useless for reinforced concrete work, though it might perhaps have done for foundations of cheap structures, where any great resistance to crushing is unnecessary, and where rapid increase in strength is not required. It is strange that an air-slaked cement never approaches the strength of a cement which has been gauged and kept in water for, say, any period up to a year, and has then been dried and reground and used for making concrete. With the former the strength is almost nil, but the latter sometimes nearly approaches the strength of the original cement. Of course, if the old gauged cement be heated until it is red, then the same strength may be obtained from it as from the original specimen, but I would sooner have a cement on the site that had been ground to flour, from old gauged neat briquettes, than I would have a cement which had been air-slaked, as by becoming caked in the sacks and being afterwards rubbed through a sieve. I speak from knowledge gained from experiments and from experience in practice.

There is another peculiarity which is exhibited by excessively air-slaked cement over what I may call proper cement, namely, that when concrete is made therewith it becomes very hygroscopic, and no matter what its age is, it will always exhibit this defect. Moreover, concrete made with this air-slaked cement will take the colour of the aggregate, and will, as a rule, throw off a very peculiar odour. The concrete made therewith will be very low in crushing strength and in all other directions, and is really absolutely valueless for reinforced work. A case happened with some work I designed about five years ago. It was a raft for a school. One truck load of cement appeared to be good, yet when made into concrete after a lapse of three weeks it was almost in the same condition as when laid, only that the moisture had largely evaporated. After this raft had been laid, the contractors left the work, and the defect was only discovered when they returned to continue their work.

The whole of the remaining work, which had been carried out by the same firm with the same aggregate but a different freight of cement, was good. The only conclusion I could come to was that this particular cement had been kept in store for so many years that it had become inert, or else that it was the sweepings of a cement store which had become hydrated and ground up by constantly treading on it, so that being thus pulverised it was thought still to be a legitimate cement.

Hints to Cement Manufacturers.

I recommend, therefore, that, wherever possible, the cement manufacturer should state when the clinker was ground, how long it has been in stock before being bagged, and that when tests are sent with the several consignments they have been made from the cement that has been sent and not from the cement from another portion of the store, which may not have been ground at the same time as the consignment. This recommendation applies to cement when sent direct from the manu-

facturers to consumer. When, however, the manufacturers send the cement to agents, then the conditions should be made much more stringent, because storage in an agent's store may do, and often does, grievous harm to a cement which, when originally received, may have been all that could be desired. No manufacturer should permit any agent to sell his products unless he is satisfied that the store in which it is kept is so constructed that the cement will be stored in such a manner that no possible chance of injury is likely to take place to it. Most people have very hazy ideas as to how cement should be stored; they still imagine that it should be laid on floors in layers not more than twelve inches thick, turned every third day, and so on, and not used for twenty-eight days; also that the store should be well ventilated, etc. If they would carry out this procedure with a finely-ground cement, and have an analysis made after twenty-eight days' aeration, they would be rather surprised at the loss in lime contents and the amount of moisture that the cement has absorbed, while if crushing tests were made before and after aeration, they would have a practical demonstration of how much loss there was in the compressive resistance.

So much I would remark of the manufacturer and his agent. I now have a word to say about contractors and builders, who very often think that all that is necessary is to lay a few boards on the ground, pile the cement thereon in sacks, and then cover over with a tarpaulin, the more the wind that blows on the same the better, as thereby the cement will be aerated and made sound. True, it will be sound, in that it will surely not show expansion or contraction, but neither will it be any good whatever if it be kept long enough in such a situation before it be used. The cement must be carefully stored, and whenever possible it should be turned out of the sacks into air-tight bins, where it will keep for many years so long as the air is excluded. The only alternative is that cement should be brought on to the works in casks if it is thought that some considerable time may elapse before it is required to be used. Cement stored in casks when they are well made and lined with paper will keep for years, and the loss in lime contents if kept for two years or more will not be more than 2 per cent., and this will only reduce the crushing strength about 10 per cent.

Concrete More Important than Steel.

I am calling special attention to storage in order to save trouble, not only for the manufacturer, his agents, and the contractors, but also indirectly for the engineer, architect, and proprietor. Where the engineer knows that the cement is *A1* there need be no fear that the work will not turn out well; he may sleep in peace, and no tests of the completed structure will be necessary, but if the concrete should be inferior then no addition of steel reinforcement in tension is any good. If failure takes place owing to weakness in compression, all the theory and mathematics imparted into the design of reinforced concrete will be of no avail; but if the concrete is good, even 50 per cent. of the steel may be left out accidentally without damage resulting. The exercise of a little more common sense in the design and execution of reinforced concrete construction

* Extracts from the Presidential Address to the Concrete Institute.

combined with practical knowledge and experience is better than oceans of theory and reams of mathematical calculations to secure refinements in the amount of steel, when our deductions after all are only empirical owing to the fact that the concrete is a material which increases with age, and does not, like steel, remain a constant.

In addition to watching the cement, a watch should be set on the aggregates, more especially upon the sand. At the present time on the south and east coasts ballast and sand dredged from the estuary of the Thames is almost invariably used. It seems, however, to be getting very much finer, and if any excess be used the crushing strengths up to periods of three months will be very considerably lowered, though after a lapse of twelve months or more the concrete will gradually recover much of its early loss. Early strength is, however, required, so that for ordinary work an excess of sand is undesirable, unless it be in the case of tanks, though in that event more cement should be added.

Cracks in Concrete.

Many of us have been troubled for many years past by the unsightly contraction cracks that take place in reinforced and other forms of concrete construction, and so far no remedy has been found to stop what I may call the natural law of contraction during hardening and ageing. Where the concrete is subjected to variations of temperature on both sides, cracks must develop, but where concrete is subject to normal conditions I have been promised that some experiments will be made on definite lines to see whether it is not possible to stop this cracking to a large extent. If it is reduced to, say, only 25 per cent. of what is now common, then I think that reinforcing will get over the difficulty to a large extent. Should the experiments be satisfactory, then the results will be given to this Institute.

There appears to be a slackening in the steel production of this country, though this, I think, is due to the dumping of steel from abroad and a falling off in foreign demand, and not to any lack in home consumption. Structural steel is in great demand, and this points to large buildings being constructed, which in turn means that large quantities of concrete must be used, not only for the construction of floors, but also as a means of protection against fire, and therefore a busy time for the cement manufacturer seems foreshadowed.

This, however, will depend to a very large extent upon whether the price of cement rises or falls. At the present time the rate is extremely high as compared with previous years, and I am afraid that if a further rise should take place in the price of cement it will most seriously hamper not only reinforced concrete construction but concrete work generally. There is a distinct danger in any increase in the price of cement, in that cheap foreign makes may be attracted thereby into the English market, and it is always a most difficult matter when work is being carried out to know whether a poor cement has been brought on the site or not.

English v. Foreign Steel.

It has been the custom of several firms in this country to import what are known as foreign blooms, roll them, and sell them as English steel. It has been my lot, either fortunately or unfortunately, to come across steel so made, and I found in every instance that it only came up to the foreign standard of twenty-six tons per square inch, whereas the lowest limit of the

British standard is twenty-eight tons per square inch. In many cases the steel rolled in this country from foreign billets has been as low in tensile strength as twenty-three tons per square inch. So I desire here to call the attention of all those who are interested in steel for structural work generally and for reinforced concrete work in particular that the tests on steel should be carefully watched. In every case where possible, especially where the work is of such a size that one can afford to pay for tests, I advise that tests be made of the steel by an independent testing engineer.

The Dearth of Competent Assistants.

My notice for some time past has been drawn to the difficulty in obtaining assistants who are capable of designing reinforced concrete work and structural steel work. I consider that modern methods of teaching are largely at fault. At the present there is too much school and college training and not sufficient practical training in the shops. When I was a young man I had to go through all the shops and work from 6 a.m. to 5 p.m., and so gain an insight into practical work and be able to handle all tools and carry out work. This training enabled one to come in contact with all kinds of designs, and to judge which was the best, both as regards utility and cheapness, or to combine several designs with that in view. At the present day few persons go through the shops; in fact, they think it lowers their social status. The consequence is that they have very little knowledge of practical work except that gained from illustrations in some book or magazine, and when called upon to design works they must have some previous example before them to see how it should be carried out, or must entirely rely upon others for their knowledge. In most cases knowledge has to be gained at their employers' expense.

The old methods of apprenticeship, in my opinion, were the best, and I think that better men were turned out thereby, at least from a practical point of view. All the learning in the world is no good unless one knows how to apply it: one may be well up in the theoretical part, say, of surveying, etc., but when it is a question of carrying out a survey, then practical knowledge is required. I think that wherever possible it is better to have the practical experience first, if possible, of course, securing simultaneously a combination of both. This is not always possible owing to the difficulty of a lad who has been working hard all day giving up his evenings to study.

Much of the inadequacy of reinforced concrete design to-day is attributable to the inexperience and want of proper technical training among structural engineering draughtsmen. The dearth of competent assistants is especially to be deplored because of the frequent harm that results by the making of mistakes by the incompetent draughtsmen who are employed for the want of good ones. The progress of reinforced concrete as a method of construction is hampered thereby, for when persons notice so many mistakes being made they are often chary of employing it. Naturally, specialist engineers are desirous of increasing their output to the utmost, and they feel forced to seek help from those who are the only available material, and in the rush of work designs turned out by these assistants are too frequently inadequately checked before execution.

A vote of thanks to Mr. Wells was proposed by Professor Henry Adams, seconded by Mr. D. B. Butler, and supported by Mr. E. Fiander Etchells.

SELF-SUPPORTING CONCRETE TOWERS.

Two self-supporting concrete towers with 90-ft. booms are being used to distribute mixed concrete for an eight-storey basement, and sub-basement reinforced concrete building now being erected at St. Paul, Minn. The building is 100 ft. by 288 ft. in plan, with the mushroom type of reinforcing, and requires 15,000 cu. yd. of concrete. As permission from adjoining property owners to attach guy wires to their buildings could not be obtained, the towers had to be built with sufficient stability to stand alone.

Next to the building an ordinary tower made of heavier timber than usual, was erected. In the rear an auxiliary tower 10 ft. by 16 ft. in plan, was built to a height of about 70 ft. The main tower will, at the time the building is completed, reach about 175 ft. above the pavement. To counterbalance the weight of the boom and three shutes, which are suspended by cables, the rear tower is weighted with stone, its own weight not being sufficient to serve as an anchorage. Within the rear shaft is an elevator skip, on which loaded wagons are driven and material dumped. After the team is driven off the material is hoisted and automatically dumped into elevated bins at one side of the auxiliary tower. A rectangular timber frame, sliding on the two front timbers of the main tower as guides, carries the boom and shutes on a pivoted connection. To raise the frame a block and tackle fastened to an overhanging timber extending from the main tower, a lead running therefrom to the hoisting engine. The circle of these booms is sufficient with the small pivoted shutes at the ends of the main shutes to cover the whole area, and a hopper, carried in a sling in the main shaft, is raised or lowered to a point opposite any one of the three shutes. Two mixers are placed directly under the material bins at the level of the second bend of the main tower, so that it is unnecessary for the elevator buckets to be lowered quite to the street level.

LONDON MASTER BUILDERS' ASSOCIATION.

The ordinary meeting of the Council was held on Thursday, November 20th, at Koh-i-Noor House, Kingsway, W.C. when Mr. Walter Lawrence, jun., President, occupied the chair. There was large attendance of members.

An important discussion took place upon the prevalence of strikes against the employment of non-union labour, and a resolution was carried dealing with the point and instructions issued in accordance therewith, details of which will be shortly placed in the hands of all members.

A uniform plan for dealing with standard rate of charges for daywork was carefully considered and referred to Special Practice Committee to report thereon.

The question as to painters' rules was again discussed and the suggestion put forward by the Society of Operative House and Ship Painters that the rules agreed between it and the London Association of Master Decorators be adopted was unanimously rejected.

Reports of the Special Rules Committee, Law and Parliamentary Committee, and Conciliation Boards were received and adopted.

Several new members were elected and nominations for membership received.

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(From Piranesi.)

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The Essence of Domesticity.

WHILE it is difficult to give the appropriate note to town-halls, post-offices, theatres, fire-stations, and other public buildings, the ordinary private house, if treated in a straightforward manner, invariably reveals its purpose. One may meet with a few obvious absurdities, such as the mid-Victorian castellated villa, but most country dwellings are quite domestic in character—that is, the disposition of their chimneys, windows, and front-door proclaims their domesticity. At least, nobody would mistake these buildings for churches, water-towers, granaries, abattoirs, or crematoria. But it does not follow, therefore, that they are beautiful; they may consist of features thrown together anyhow, the top storey may have no connection with the lower ones, the juxtaposition of rough-cast, bright red brick, and purple slates may produce an appalling discord. Private houses, however, they undoubtedly are. Few architects can endow a dwelling with beauty, but almost anyone can make it look domestic.

So far as the general public is concerned the character of a building is determined by what the public sees of it. Often, a hedge which obscures a house from view, or a high wall with a fairly small door through it, such as is common in Turkish and Moorish cities, is suggestive of mystery and a certain charm of seclusion. The ancient Roman town house, comprising interior courts surrounded by shops, was, in its way, a perfect solution of the problem that this type of architecture presents. For what could be more truly private than an abode of which only the entrance is visible? Americans sometimes sneer at our tall fences and the bushy screens by which our country and even suburban villas are hidden from view, and contend that we show a churlish spirit in thus putting a check upon the kindly curiosity of our neighbours; and they point to their own unobstructed house-fronts that greet the passer-by and show that even a private retreat can be a public ornament. The Englishman would probably reply that it is neither arrogance nor selfishness which causes him to conceal his dwelling-place, but merely modesty. His house is of interest to his friends who enter his garden gate, but he does not imagine that it could be a matter of concern to anybody else.

It is in the towns that the problem of the character of buildings really arises, for character is little more than deportment—a stationary silent ritual. Buildings must be in proximity to each other before it is necessary to ask whether their proper social rank has been expressed. In the midst of a spacious park there may be a château at whose corners are turrets with high steeples, and nobody has a right to say that it does not look domestic; but place it in the town in such a position that the very church spires are set at nought, and the building immediately becomes a vulgar intruder.

When we see a terrace of houses all alike showing a series of doors at regular intervals, we know at once that it is inhabited by numerous separate families who have not necessarily got anything to do with one

another. Such a terrace need not be dull, for variety may be introduced into the details of doorways, balustrades, and other features. Of course, infinite repetition would be wearisome, and if the units themselves are insignificant, as they are in countless streets in the poor quarters of our towns, the effect is indescribably mean. There is another type of street, equally domestic in character, where the houses are still contiguous, but all different. This also has its virtues, and allows for great individuality of treatment, but it becomes as wearisome as repetition if carried to excess. The eye demands a larger unit, some means of bringing scale and cohesion into the street. The design of these larger units is the most ambitious task which the domestic architect can set himself. The difficulty here is that the building is apt to express a unity which does not exist among its inmates. In spite of the multiplicity of its entrances, it may easily give the impression that it is some institution whose members are bound together by a common tie. In reality, it is merely a domicile inhabited by a large number of people of diverse interests and occupations who live in the same town, it is true, but who are not associated in any other way. Again, it is possible that in a composition a part, say the centre or an extremity, is so accentuated beyond the other parts that one would naturally assume that it was inhabited by somebody more important than his neighbours, whose superior status is expressed by the position accorded him in the group. Hence, to give such a large building the character of domesticity it is essential that no part of it should be very much more conspicuous than any other part, although, of course, some slight accentuation is necessary if there is to be a composition at all. Many of our residential squares are admirable examples of this reticence in design, and numerous terraces have a similar quality. A typical one of this latter kind is the group whose central feature is brought forward perhaps a few inches and surmounted by a flat pediment scarcely higher than the parapet wall, while at the ends there are smaller projections. It is a fatal error to combine two houses under a single pediment; the occupants are thus forced into a union which might be most distasteful to them, and they often take revenge by painting their respective halves in contrasting colours, so that their separate identity is clearly established. The architect may declaim against the lack of æsthetic taste that is here displayed, but in this instance his own ignorance of social psychology must be held responsible for the defacement of his design. It was not sufficiently domestic, so his clients had to take steps to improve it in this respect, even at the cost of marring the beauty of his façade.

If a speculative builder were to erect houses displaying in a marked degree the blemishes that have been mentioned here he might not easily find tenants for the public would regard his work as eccentric and bizarre. Moreover, people prefer to live in a group which is not an isolated example of its kind, but supported on either side by other groups, different in design, perhaps, but still expressing the same spirit of

subdued individuality. In places where there is only one single residential square, which shows up obtrusively in the plan of a town as if it were the abode of privileged or else peculiar citizens, it is never very popular. There must be a plurality of squares before such a formation becomes truly domestic in character.

A. T. E.

Motor Traffic and Plaster Ceilings.

THE Kent Education Committee have had under discussion the falling of about 5 ft. by 3 ft. of a ceiling at one of their schools at St. Mary Cray, and the incident is worth recording because it seems to point to the necessity of meeting new conditions by modifying practice. A somewhat hasty attempt to blame the builder found but little support, in view of the explanation that, in the opinion of the architect and the school managers, no fault could be found with the workmanship or the materials, as the accident seemed entirely due to vibration from extraordinarily heavy motor traffic, which had affected several other houses in the same way. Plaster ceilings, admirable as in many respects they are, cannot be expected to withstand vibration which breaks windows and crockery-ware, and casts down to the hearth the *lares et penates* of the mantelpiece. The lumbering wains that used to convey agricultural produce from Kent to Covent Garden were light in comparison with the colossal train-loads that create chronic earthquake all along their line of route; and the new conditions of traffic have set the architect and builder, as well as the municipal engineer, some rather knotty problems in construction; of which, however, that relating to ceilings is comparatively easy of solution. There are available several substitutes for plaster, whose disappearance (however much one may regret it) from the larger buildings along the lines of main-travelled roads seems to be foreshadowed by this very significant incident from Kent. "The handwriting is on the"—ceiling.

Lady Stair's House.

LORD ROSEBERY'S public spirit in presenting to the corporation of Edinburgh the quaint seventeenth-century building known as "Lady Stair's House" has been appropriately backed by the city authorities, who have converted it into a municipal museum. Edinburgh is already rich in museums, but seems still richer in objects with which to fill them; and these are commonly arranged with a knack and nicety peculiar to the Scottish curator, whose happy methods might well be copied in the south. Lady Stair, who was a leader of society in her day, had for her first husband the first Viscount Primrose, who was of course an ancestor of Lord Rosebery, who, truth to tell, has no great reason to be proud of him in this connection; but it is no man's prerogative to choose the right ancestors. Most of the mansions of old Edinburgh are let out in tenements to extremely poor people: who, however, are honourably distinguished from English people of the same class in the respect shown to objects of antiquity. In many old houses in the Canongate, for instance, whose chronicles Sir Walter Scott has invested with such romantic interest, the inhabitants preserve with jealous care the fine old chimneypieces and other relics, which seem to mock their squalor. Possibly Lady Stair's House may contain well-preserved and interesting interior fittings.

Cloth Fair.

WHAT to do about Cloth Fair the London City Corporation seem to have no very clear idea. Wholesale clearance of insanitary houses is opposed on two grounds. It would cost about £120,000; and it would destroy the last vestiges of antiquity—the few Jacobean houses that are so incongruously jostled by modern warehouses, and really

look so uncomfortable in the companionship that one would not greatly regret their disappearance. Yet they are not without interesting associations. Possibly Ben Jonson may have looked upon them when he was getting local colour for his quaint comedy of "Bartholomew Fair." It was here, close by the priory church of St. Bartholomew-the-Great, that the merchant tailors put up their stalls in the time of Rayer, the court jester of the days of Henry II. Rayer, after doing penance at Rome for his bad jokes, turned monk, and was commanded (in the customary vision) by St. Bartholomew to found a priory in Smithfield. Rayer then became Raherus or Rahere, and, to his no small profit, founded also Bartholomew Fair, of which the old houses in Cloth Fair are an interesting reminiscence. Some of the houses, whose sanitary salvation is said by the advocates of drastic clearance to be beyond the resources of modern science, are obviously of much more recent date, and would disappear unwept. In any case, sentiment must not postpone sanitation.

Rural Housing Reform.

MR. HENRY HOBHOUSE, chairman of the Somerset County Council, has published a letter protesting against the decision of the Government to take housing entirely out of local hands. He hopes that Mr. Burns, to whom his letter is addressed, will, as President of the Local Government Board, be able to devise some plan for preserving to the stronger local authorities some voice and interest in what is so largely a question of local as well as national concern. As the matter stands, a good many important local housing schemes have been brought to a stand owing to the uncertainty which has been created as to the area which is to be charged. This latter difficulty should be removed without delay; but the question of central control is one that cannot be so easily determined. Central control is necessary: but how to exercise it without discounting efficient local organisations, and without destroying local interest and enthusiasm, is a problem whose solution is of the utmost consequence to housing reform.

Fresh Incursions of the Goths.

RECENT correspondence, in the Manchester newspapers, on the assumed rivalry between Classic and Gothic, suggests the reflection that there was bound up with the Gothic Revival a tendency to revolt against the intense practicality which came in with the application of steam-power to the industries, and to revert, for relief, to the dreamily romantic vagaries of a more emotional epoch. This revulsion or reaction was but the last flicker of flame from the mouldering ashes of an expiring convention, and a Manchester correspondent's contention that "if the Gothic revival fell into serious faults, it also produced great and abundant works, and has left a permanent impress on the practice of architecture," is difficult to follow; for while agreeing very heartily with the acknowledgment of "serious faults," one would like ocular evidence of the "great works," the "abundance" being more easily demonstrable than the "permanent impress on the practice of architecture." In affecting to regard Neo-Classicism as the manifestation of "a period of reaction," the Manchester correspondent shows a curious failure to realise the power and significance of the Renaissance. To speak of it, or of one of its chief manifestations, as a reaction, is to confuse a great world-movement with a feeble and temporary recrudescence of the vague and dreamy mysticism of the Dark Ages. Neo-Classicism is not a reaction against Gothic. It is an extension of the Classical movement which, beginning to spread with the expulsion of the Greeks from Constantinople, has gone on continuously ever since, in spite of the modern incursions of the Goths.

HERE AND THERE.

RUMMAGING, in a desultory way, through the Transactions of the Royal Institute, I chanced upon an item of biographical interest concerning the late F. C. Penrose which may now be given as supplementing the notes about architects and athletics that appeared in these columns some time ago. Mr. Penrose, I knew, had distinguished himself in abstruse mathematics long before he ever thought of optical refinements in Athenian buildings, the determination of which was subsequently to bring him lasting fame. But it was quite news to me that he was no less distinguished as an athlete when at Magdalene College, Cambridge, than as a Senior Optime, and I think it worth while recording that Penrose was a University Blue, having rowed in the Boat Race for three years in succession—1840, 1841, and 1842. Cheered at finding such an interesting item in a place where I least expected to be enlivened, I sought for more information of an intimate nature, and found it. Here, then, let me set it down for the benefit of those who remain in ignorance of the means by which Penrose established his minute measurements of the Parthenon.

As to who conceived the germ-idea about these Greek refinements in architecture I am not qualified to speak. I always thought that Penrose was entitled to the sole credit for the whole conception, as he undoubtedly was for its mathematical establishment, but Pennethorne, it appears, had written a pamphlet in which he put forward some theories on the subject, and it was by reason of the express wish of the Society of Dilettanti to have these theories put to the test that Penrose undertook the assiduous task of making exact measurements of the Parthenon in 1846. Two years previously he had determined the hyperbolic curve of the entasis of the columns, so possibly it was Pennethorne who followed Penrose, but it seems evident that the former's pamphlet brought the matter to a conclusion. And here we come upon the incidental data which are always so entertaining. In order to take the measurements, it was first necessary to fix a scaffolding. This, with the aid of men from H.M.S. Amazon, was hoisted into place and slung to the entablature of the Parthenon peristyle, and in this exposed position, during the bleak winter months, the work was carried out. I am sure that if only there were some photographs of Penrose and his companion, Thomas Willson, perched up on this scaffolding, we should turn to them with much interest, and they would give us a better conception of the great task in hand than we can ever hope to gain from any printed record, while their personal interest would far outweigh that which is possible with an official portrait for the Institute, even though that be a brilliant piece of painting by Sargent.

As to the exactitude with which the measurements were taken, Mr. Crace's memoir give us an indication. On December 27th, 1846, Penrose wrote:—"We have ascertained exactly, as far as we have gone, the present position and the perturbations of the greater part of the eastern end of the building; and if we have a few more calm days we shall have quite finished our survey of one-half of it." The calm day, it should be explained, was needed so that proper use could be made of a 12 lb. plumb at the end of a copper wire, which gave the true vertical line. The care and nicety with which the work was done will be readily appreciated when it is mentioned that the following decimal system was used, 1 foot being the unit:—.1, .1, .01, .001, .0001. "It is seldom," writes Penrose, "that this last ($\frac{1}{10000}$) is used, but it occurs sometimes."

headings of "The Weather" or "The Problem of Ulster," but there is certainly going to be a lot of work for builders to do when the 10,000 cottages come along. I hesitate to suggest that architects will reap any harvest, because we have no definite information as to what will happen in the way of "standard" houses for the agricultural labourer. Perhaps a committee of architects will draw up a set of designs, will be paid a handsome fee, and thereafter the profession will stand aside while the builder works away merrily with his "standard" windows and doors, his "standard" tiles and grates, his brickbats and "standard" four-by-twos. But supposing anyone, some architect perhaps with an eye to business, should raise a ticklish point under the new Copyright Act, and charge the committee with having appropriated his own peculiar invention? Then matters would take a very lively turn. I wonder who is going to be the first to test this nebulous affair, the possession of copyright in a plan. For my own part, I think the defendant will win the day, and so set the whole rank and file copying to their hearts' content. But everyone fights shy of the law court. Would it not be a great service if the Institute would take a financial interest in a test case?

* * * *

This is hardly the time of year to say anything further about summer-houses, but having found myself to be under a distinct misapprehension, I cannot wait six months till summer weather makes the subject appropriate. Let me acknowledge at once, then, that in accusing the Mid-Victorians of having devised the "rustic" summer-house and its fearful windows of coloured glass, I did them an injustice. The prejudice which allowed me to forget *le jardin anglais* that was so popular in France at the end of the eighteenth century is completely revealed by a passage in "The Memoirs of a Physician," by Alexandre Dumas. It is one of the episodes of that stirring novel that Rousseau and the boy Gilbert, whom he had befriended should be led into a "mouse-trap"—which took the form of a most unexpected summer-house erected on a hill-top overlooking Luciennes, the residence of Madame Dubarry. Here is the description of it:—"On the summit of the hill stood one of those little rustic retreats, with gnarled and knotty pillars, pointed gables, and windows festooned with ivy and clematis which are the genuine offspring of English gardening which imitates Nature. This summer-house, which was large enough to contain a table and six chairs, was floored with tiles and carpeted with handsome matting. The walls were covered with little mosaics of flint, the product of the river's beach, mingled with foreign shells. The ceiling was in relief, and composed of fir-cones and knotty excrescences of bark, arranged so to imitate hideous profiles of fauns or savage animals, who seemed suspended over the heads of the visitors. The windows were each stained with some different shade, so that, according as the spectator looked out of the violet, the red, or the blue glass, the woods of Vesinet seemed tinted by a stormy sky bathed in the burning rays of an August sun, or sleeping beneath the cold and frosty atmosphere of December." So those terrible concretions of tortuous timbers, glistening with garnish, and bedizened with coral and fir-cones, were no Mid-Victorian invention after all, nor can the employment of coloured glass in so exasperating a way be ascribed to the era of the Great Exhibition. It is, one must confess, with reluctance that even one item in the list of Mid-Victorian offence has perforce to be withdrawn, but the facts of this case cannot be controverted.

* * * *

"Rural Housing" has taken its place in the newspapers with a frequency that challenges the standard

UBIQUE.

THE PLATES.

Post-Office, Eighth Avenue, New York.

THE post-offices, like the libraries of the cities of the United States are on a magnificent scale, commensurate with the dignity of their uses. The post-office building in Eighth Avenue, New York, which we illustrate this week, is a fine example of its class. It is most impressive when viewed from the side, in sharp perspective, as the photograph on our plate well illustrates: but from any point of view its range of tall Corinthian columns, stretching across the façade, gives it nobility of appearance. In connection with this colonnade it is opportune to note that no Order is more difficult to treat successfully than the Corinthian; the capitals have the most uncomfortable way of changing their apparent form, when actually executed, from that expected from the drawings, and even models by no means give a fair impression of the work in place. The Romans themselves were not always complete masters of the Order in which they delighted, and there are not infrequent examples which are better viewed directly from the front than from the side. In New York there are probably many thousands of Corinthian columns, but few of them are, from any point of view, neither bulky nor attenuated; and the bigger the size of the column the more difficult the problem appears to be, since one must count on the distant view (which is nearly in elevation) as well as on the nearer view in sharp perspective. In the post-office building now under consideration perhaps the most interesting technical point in the design is the window treatment behind the colonnade. Here a window area equalling practically the entire wall surface was found necessary, yet the requirement has been met with no sense of instability or incongruity. Best of all about the building is the magnificent way in which it composes with the Pennsylvania Station opposite. The lighter Order of the post-office has lost nothing in dignity by its nearness to the tremendously heavy and powerful Doric of the station, and while the base is raised somewhat further above the street than is the base of the station, the difference is so adjusted as to present the most successful example of group planning to be found in New York. This post-

office is a building of which the city may well be proud, and it furnishes still further testimony to the general excellence of the work than emanates from the office of Messrs. McKim, Mead, and White.

Concourse, Grand Central Terminal, New York.

America is the home of great railway enterprises, and its termini are on a more extensive scale than any to be found elsewhere. The new Grand Central Terminal is the greatest of them all, embracing no fewer than thirty blocks of buildings. The outbound concourse (a view of one end of which we illustrate) is the principal feature of the main building. It is magnificent in effect. Only when standing under its vaulted roof can the impressive proportions be appreciated. The ceiling is painted to represent the dome of the sky, with stars, constellations, and signs of the Zodiac. It is lighted by enormous windows. On the concourse are the facilities usually found in the waiting space of an American station, i.e., ticket office, luggage checking office, parcel rooms, information bureau, etc. These are arranged so that the movement of the passengers is a progressive one, the ticket window coming first, the Pullman window next, then the checking office, and so on. No steps have to be retraced. From the concourse passengers proceed to the train space, which is reached by broad ramps of easy grade, the difference in level being only three feet. Underneath the main concourse is the suburban concourse. The waiting-rooms are unique in station construction in that they are designed to serve as rooms where passengers may wait in comfort and quiet. These rooms are so placed that it is unnecessary to pass through them in going from or to trains, and they are thus free from hurrying crowds. Adjoining the waiting-rooms are the men's and women's rooms, barber's shop, lavatories, toilets and dressing-rooms. These last-named are a great convenience. Altogether the terminal is a wonderful example of architectural and engineering design. Messrs. Warren and Wetmore and Reed and Stem were the architects.

Bank, Glasshouse Street, London.

This building is at the corner of Glasshouse Street and Piccadilly Circus. Only the lower portion of the façade is the work of Mr. Reginald Blomfield. It is



POST-OFFICE BUILDING, EIGHTH AVENUE, NEW YORK. MCKIM, MEAD, AND WHITE, ARCHITECTS.

carried out in stone on a granite base, with bronze for the frame of the bow window, for the grille, for the drapery around the Atlantes, and for the name-plate of the bank on the left-hand pier.

Detail of "Georgian Room," Colnaghi and Obach's, Bond Street, London.

Among the rooms at Messrs. Colnaghi and Obach's new galleries in Bond Street is one called the "Georgian Room," which is used for the display of old mezzotints and colour-prints. In this room there is some very admirable enrichment, the carved overdoors being particularly noteworthy. The carving of the school of Grinling Gibbons has, obviously, furnished the general *motif*, but the design of the large shell ornament in the centre, the leafage and the small shells that hang over the bottom edge of the panel make up an ensemble which is quite individual to Mr. Rickards. Of interest, too, is the flowing leaf ornament in the frieze of the cornice. The woodwork is painted a soft green colour, and gives an air of quiet grace to the room.

Residence, Rue de Constantine, Paris.

The façade of this house is a particularly good example of modern French work, carried out in the stone which gives such a homogeneous appearance to the streets of Paris. We regret that we have not been able to ascertain who was the architect, and so are unable to give a plan of the house. It is evident, however, from the range of six tall windows, that the main rooms are on the second floor. The shutters that fill the openings are worthy of notice, as is also the iron-work to the balconies.

Hovenden House, Fleet, Lincolnshire.

This house stands in about fifty acres of park land, which, originally a series of ploughed fields, has now been attractively laid out, comprising among its features a nine-hole golf course and an artificial lake. The house, which is Georgian in character throughout, is built of bricks of a delightful purplish colour, diversified by others of a lighter red, the cornice being of wood, painted white. The roof is covered with old hand-made tiles. The architect, Mr. J. E. Dixon-Spain, A.R.I.B.A., has invested the interior with additional interest by the introduction here and there of a little plaster cast. The inner hall is panelled throughout to a height of seven or eight feet, the landings have plaster vaulting, and the first-floor corridor is finished with a plaster barrelled ceiling. The bedrooms are all fitted with wardrobes designed as part of the architectural scheme. Messrs. J. C. Tennant and Co., of Willesden Green, were the builders.

Measured Drawings of Georgian Interior Decoration.

We publish this week a drawing showing the half of one side of the ball-room which was so striking a feature of Carrington House, Whitehall—demolished in 1886. The house was built about 1770 for Lord Gower, and was a singularly complete example of the work of Sir William Chambers. The appearance of the ball-room, an apartment of fine proportions and ordered richness, must have been most elegant, and one doubtless appreciated with sensations of uncommon gratification by the brilliant assemblies of men and women that gathered within its walls. It is interesting to compare the treatment of the large mirror surmounting the marble mantelpiece with those of Robert Adam, who frequently essayed the design of corresponding "chimney-glasses," and to note the great superiority of Chambers's abilities. There is all the delicacy and refinement of Adam without his "finicalness," and the same qualities and defects are brought into prominence whenever a comparison is instituted between the work of these two architects. The

mantelpiece itself, it may be noted, is practically identical with that engraved in the "Treatise upon the Decorative Part of Civil Architecture" (1836 ed. Plate 53), and there described as "intended for Windsor Castle."

THE ENTASIS OF THE COLUMNS OF THE TEMPLE OF MARS ULTOR.

THE actual laying out of the entasis of a column is recognised as one of the most delicate problems in architecture; the curve is very subtle, and may destroy the beauty of a shaft unless great care is taken.

In my recent work on the Temple of Mars Ultor in the Forum of Augustus, Rome (writes Mr. Kennerly E. Carpenter), I tried to determine the curve used for the entasis. I selected a flute with an arris as near perfect as possible. A wire, made vertical by the use of a plumb, was then stretched from top to bottom and readings taken from this wire to the arris at intervals of, roughly, a foot. These readings were plotted, and shown on the accompanying diagram (see key), which the vertical heights are drawn to the scale of one-quarter of an inch to the foot, while the full-size offsets of the horizontal distances are magnified twice, thus giving a more decided curve to work upon. The next step was to determine what kind of a curve the broken line approximated.

The broken curve was investigated graphically by the use of the loci or parallel chords, to see if it was a conic section (cf. Penrose, "Principles of Athenian Architecture," Pl. 47, Fig. 3), with the result that the dotted broken line was found to approximate very closely a parabola. Through four points in the dotted line a parabola was passed, and the close coincidence of this conic section with the broken curve obtained from actual measurements is shown on the diagram. Note that the axis of the parabola is horizontal and on a line with the top of the plinth of the column.

A further investigation was made to see how close the dotted line agreed with the Vignola method of laying out an entasis, so much in use to-day. The Vignola entasis is a helix on top of a vertical line, the helix starting at a point one-third of the way up the shaft (see key and Fig. 1). The helix starting at "A" and passing through "B" coincides so closely with the dotted curve that, from the data at my disposal, it is difficult to say whether a helix or a parabola was used on the temple.

The main object of the diagram is to show the mistake of laying out the entasis of a column by the Vignola method, which gives a curve quite different from the subtle entasis of this beautiful column (cf. diagram).

It is interesting to note that, in a height of 48 ft., the maximum entasis was found to be only 1/5-32 in. (See diagram.)

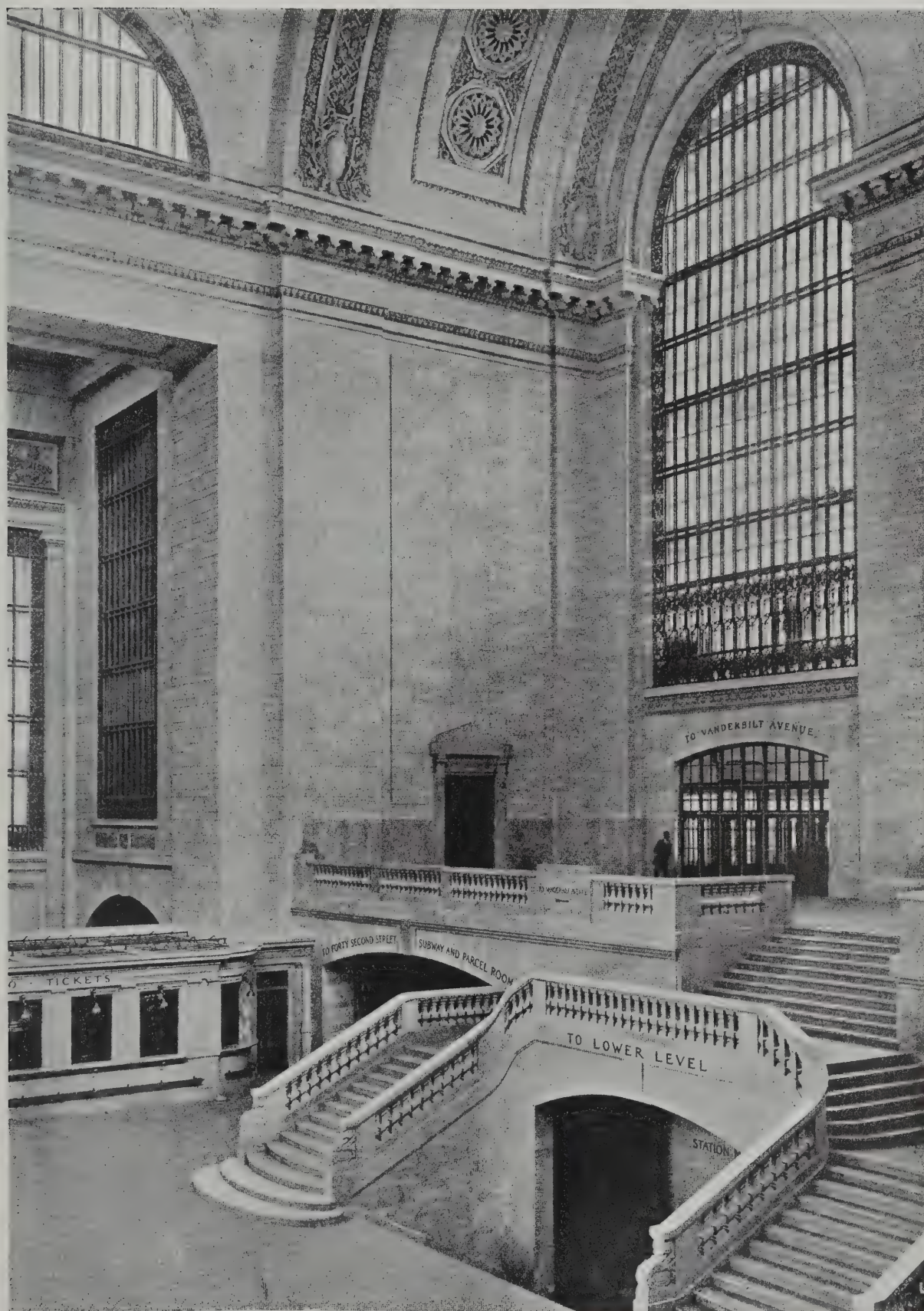
A few comparative examples taken from Penrose's "Principles of Athenian Architecture" may be of interest. The figures are given in feet and decimals of feet:—

Building	Length of shaft between fillets	Maximum entasis	Height of entasis above stylobate
Erechtheum—North portico	21.12	.0195	10.4
Theseum	17.1	.023	8.7
Parthenon from peristyles	31.43	.057	13.8
Propylæa—Small order	17.5	.0343	9.3
Propylæa—Large order	25.6	.0627	13.7
Jupiter Olympus	43.7	.118	18.4
Results of my investigation on the Temple of Mars Ultor, Rome	48.00	.0963	26.6



CURRENT ARCHITECTURE. XXIII.—POST-OFFICE BUILDING, EIGHTH AVENUE, NEW YORK.

McKIM, MEAD, AND WHITE, ARCHITECTS.



CURRENT ARCHITECTURE. XXIV.—STAIRCASE AT END OF CONCOURSE, GRAND CENTRAL TERMINAL, NEW YORK.

WARREN & WETMORE AND REED & STEM, ASSOCIATED ARCHITECTS.



Photo: Bedford Lemere & Co.

CURRENT ARCHITECTURE. XXV.—BANK, GLASSHOUSE STREET, LONDON, W.
REGINALD BLOMFIELD, A.R.A., ARCHITECT.



Photo: Bedford Lemere & Co.

CURRENT ARCHITECTURE. XXVII.—CARVED OVERDOOR AND CORNICE IN "GEORGIAN ROOM,"
COLNAGHI AND OBACH'S, Nos. 144-146, NEW BOND STREET, LONDON, W.

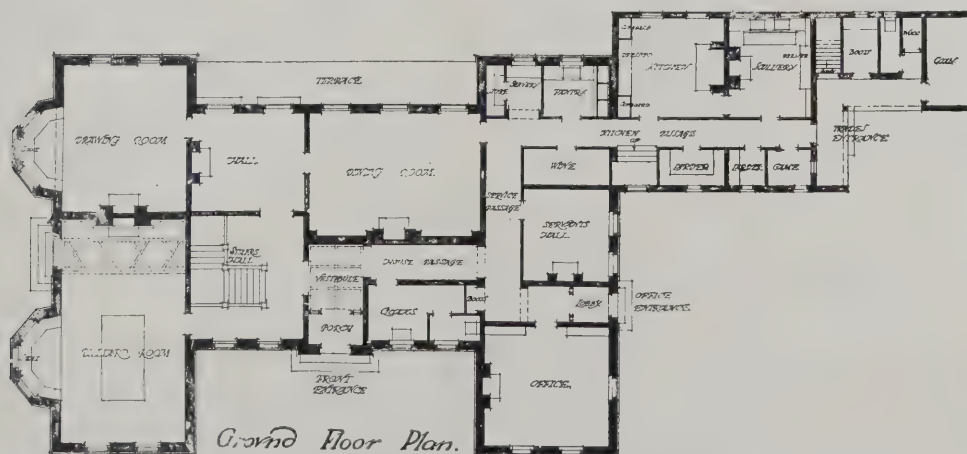
LANCHESTER AND RICKARDS, F.F.R.I.B.A., ARCHITECTS.



CURRENT ARCHITECTURE. XXVI.—RESIDENCE, RUE DE CONSTANTINE, PARIS.

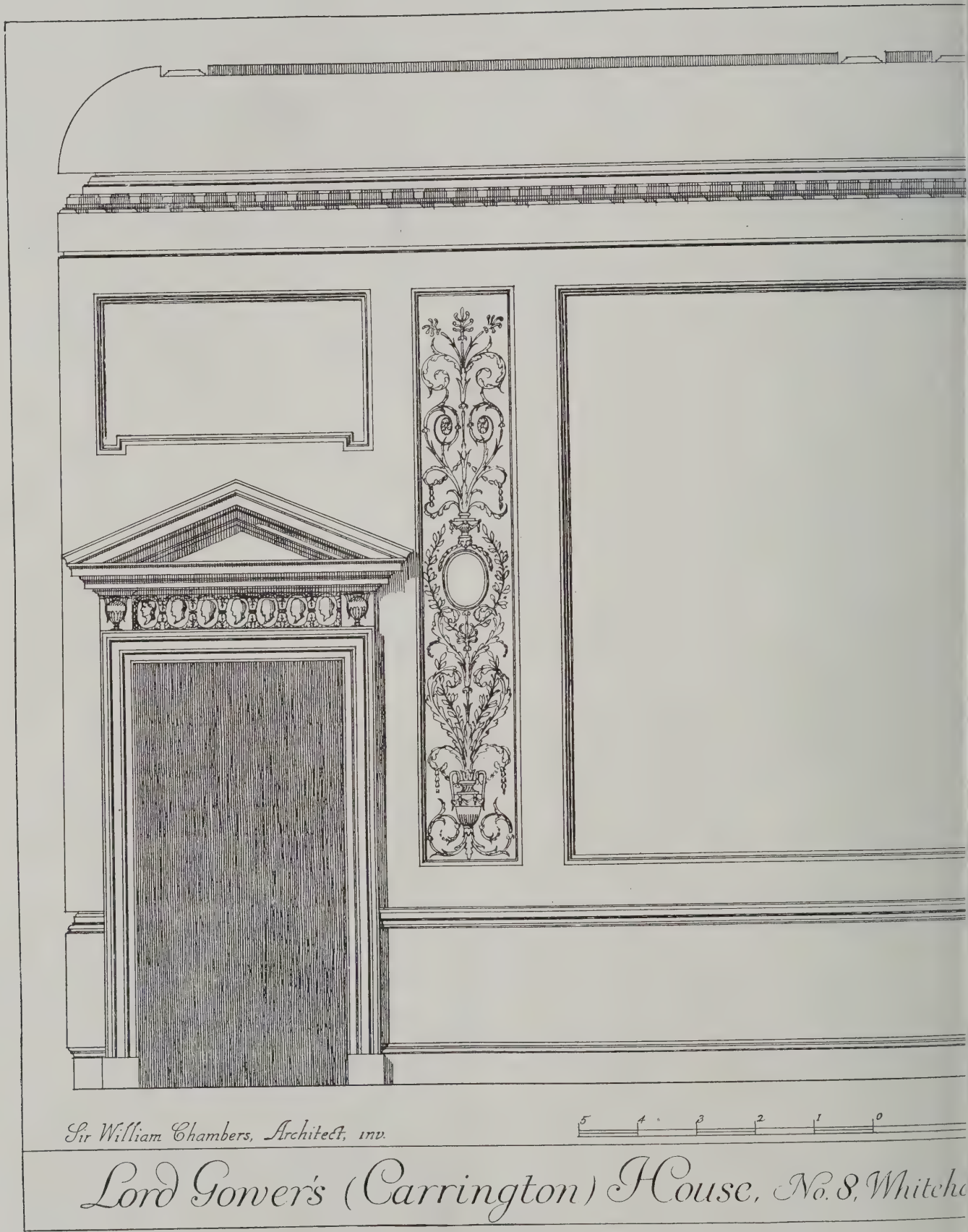


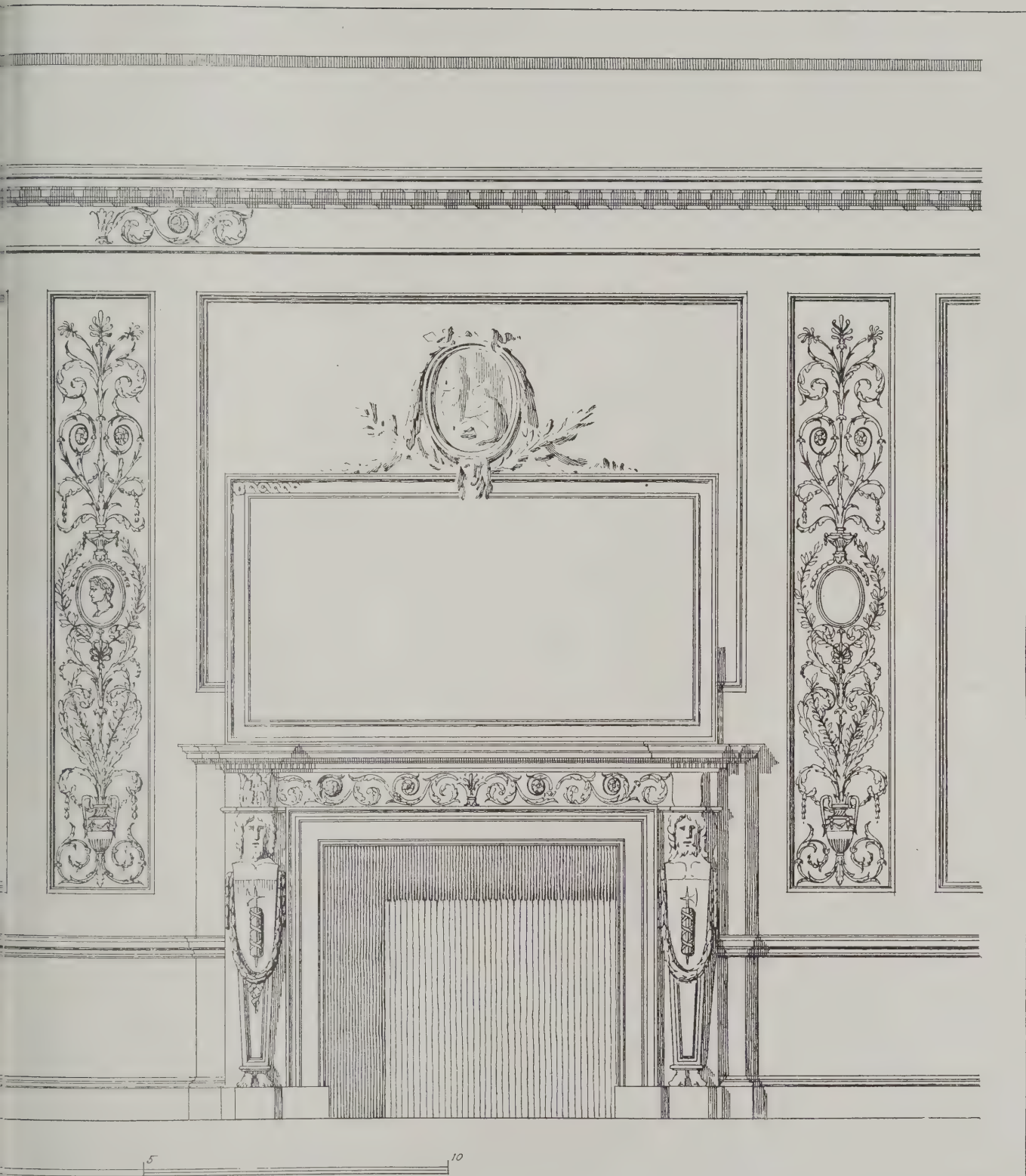
Detail of West Front.



MODERN DOMESTIC ARCHITECTURE. XI.—HOVENDEN HOUSE, FLEET, LINCOLNSHIRE.

J. E. DIXON-SPAIN, A.R.I.B.A., ARCHITECT.





Section thro' BALL ROOM on First Floor

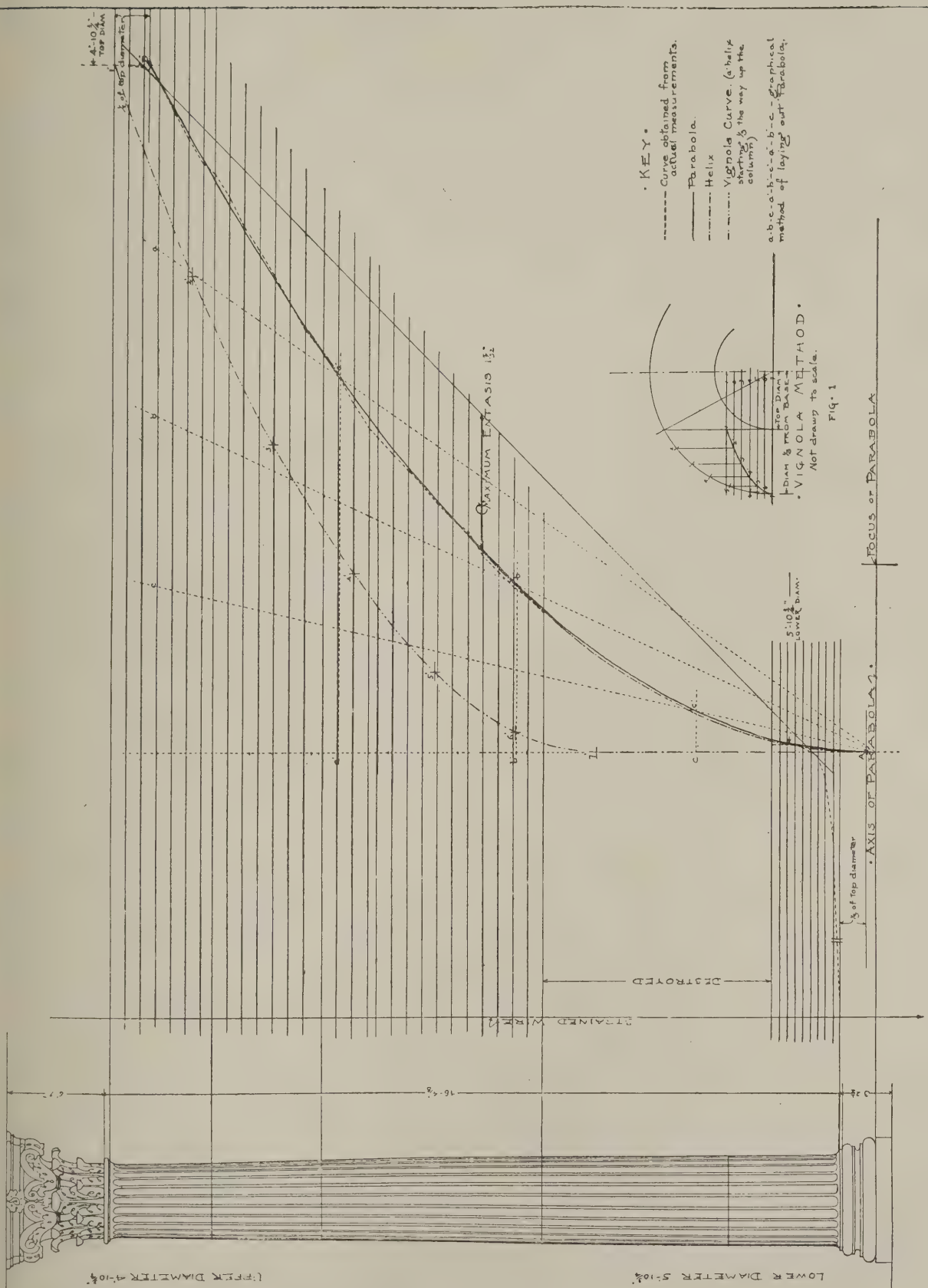


DIAGRAM OF COLUMN ENTASIS, TEMPLE OF MARS ULTOR FORUM OF AUGUSTUS, ROME. DRAWN BY KENNETH E. CARPENTER.

THE CONDITIONS OF BUILDING AND ENGINEERING CONTRACTS.—X.

Being an Explanation of the Clauses of the General Conditions of Specifications and the Legal Decisions affecting them.

SPECIALLY CONTRIBUTED BY E. J. RIMMER, M.Eng., B.Sc., A.M.Inst.C.E., of Lincoln's Inn and the Northern Circuit, Barrister-at-Law, and KENNETH G. THOMAS, B.A., LL.B. (Cantab.).

(Continued from page 501, No. 986.)

Parenthetical numbers in the text refer to cases noted at the end of each section.

CHAPTER VIII.

ARBITRATION.

The Arbitration Clause seeks to provide for the settlement of disputes without the intervention of Court or jury. It will attempt to do this by making provision for the determination of all disputes arising between the parties to the contract as to any matter in any way connected with or arising out of the contract, by the arbitration of some person (often the engineer) or persons named in the clause. It will, however, carefully preserve the right of the engineer to decide summarily without arbitration all questions between the parties which the clause of the contract have given him the sole right to determine (e.g., measurement and value of work, approval of work, penalties, etc.), and so will bring under the Arbitration Clause only disputes which have not already been provided for. The clause will also usually provide that the arbitration may be informal, i.e., that the arbitrator shall not be required to hear or receive formal evidence, but may determine the question in dispute by the use of his knowledge, skill and judgment alone.

Under this head there are four main considerations:—

(A) Who shall be selected to be arbitrator?

(B) What matters are the subjects of arbitration?

(C) What are the powers and duties of the arbitrator?

(D) On what grounds may an award be set aside?

(A) The Arbitrator.

The selection of an arbitrator is usually made with a view to two requirements:—

(a) *To ensure that his power to arbitrate cannot be successfully challenged by either party (more especially the contractor) to the contract.*

Section 4 of the Arbitration Act, 1889, provides that if any party to a submission to arbitration commences any legal proceedings in any Court the other party may apply to the Court to stay the proceedings, and that Court, "if satisfied that there is no sufficient reason why the matter should not be referred in accordance with the submission and that the applicant was at the time when proceedings were commenced, and still remains, ready and willing to do all things necessary to the proper conduct of the arbitration, may make an order staying the proceedings."

It is therefore necessary that the person selected to be the arbitrator should be of such character and independence as not to provide the "sufficient reason why the matter should not be referred to arbitration." The Court is given a discretion in the matter, but will follow rules laid down by decided cases (*infra*). If the Court refuses to stay legal proceedings the arbitration clause becomes a dead letter.

(b) *To ensure that disputes will be speedily and economically determined.*

Actions in the Courts of Law are often so considerably delayed as to cause much loss to litigants in matters of business. In consequence of these serious delays the Ar-

bitration Act, 1889, was passed, and it is now generally considered more expeditious to refer business disputes to arbitration. Whether the cost of an arbitration is less or greater than that of an action in the Courts depends to a considerable degree upon the choice of arbitrator.

We will now consider the principal methods of selecting the arbitrator used in connection with engineering and building contracts, bearing in mind the two foregoing requirements of good selection.

1.—The Engineer or Architect.

By far the most usual selection is that of the engineer or architect who has designed and carried out the work.

It has, until recently, satisfied both the above requirements. In the first place, the person who is actually in touch with the work at all its different stages is more able expeditiously to settle disputes. It will be unnecessary to place before him all details of the case already known to him, and he will have within himself all the knowledge and skill required to decide technical questions. There will therefore be little or no expense incurred in preparing the case and no high fees to be paid to expert witnesses.

In regard to the other requirements, however, it is to be doubted whether the engineer or architect is any longer in an unchallengeable position. During the last few years the Courts have on several occasions exercised their discretion under Section 4 of the Arbitration Act (*supra*), and have refused to stay the action in the Courts on the ground that they were not satisfied that there was "no sufficient reason why the matter should not be referred to the engineer or architect."

The consideration of these cases and the earlier cases commented upon and approved have established the law, which may be summarised as follows:—

The broad rule is that *though the engineer or architect cannot be expected to arbitrate with "a mind free from the human weakness of preconceived opinion," yet he must be ready to listen to argument and at the last moment to determine as fairly as he can after all has been said or heard on both sides* (72).

This rule has been followed very strictly, and even where an engineer characterised the claim of the contractor as "outrageous" (73), or where he was to some extent judge in his own case (74), the Courts held that he had not disqualified himself from determining the matter fairly and that the action brought in the Courts ought to be stayed.

In the following circumstances, however, the Court has refused to stay an action in the Courts:—

(a) Where there was a dispute as to the design of the work and an unseemly personal dispute raising a vindictive feeling between the engineer and contractor (75).

(b) Where there was a *bona-fide* dispute in regard to whether the engineer had given a certificate of approval, the contractor maintaining that he had, and the engineer swearing by affidavit that he had never approved the work, the Court said

that it was advisable that the engineer should be cross-examined (76).

(c) Where there was a *bona-fide* and substantial dispute between the contractor and the engineer in regard to the terms of an agreement for the payment of work not contemplated by the contract, which agreement was alleged to have been entered into by the engineer on behalf of the building owner (77).

(d) Where there was a *bona-fide* allegation that the engineer, as servant of the building owner, had acted unreasonably towards the contractor (78).

(e) Where the engineer, without fraud, turpitude, or collusion with the building owner, had so mistaken his position as to fail to act judicially throughout the whole course of the undertaking, having consulted the wishes of the building owner with regard to the issue of certificates (79).

(f) Where, without application by the building owner to stay an action already commenced by the contractor, the engineer made his award without the consent of the contractor (80).

In spite of these decisions, which undoubtedly have made the position of the engineer or architect as arbitrator assailable, the cases are only a small number in proportion to those which are determined by arbitration, and there can be little doubt that the engineer or architect will still be nominated arbitrator in most engineering and building contracts.

2.—Arbitration by an Independent Person.

The appointment of an independent arbitrator may be made in several ways:—

(a) He may be named in the contract.

(b) He may not be named, but his position at the time of the reference (e.g., President of the ——— for the time being) stated in the contract.

(c) The appointment may be left to be agreed between the parties when disputes arise, failing agreement the appointment to be made by some specified person.

Generally speaking, the independent arbitrator is a luxury. Perhaps no form of litigation is so expensive as arbitration before a person who knows nothing of the particular work. It becomes necessary to call witnesses to all the facts in the case and to have a formal hearing which very often is considerably prolonged by adjournments to suit the convenience of the arbitrator and other professional men engaged in the case. The arbitrator, if he be an engineer or architect, will require expert legal advice upon the law, and will often admit evidence which is wholly irrelevant, and thus cause considerable delay; while, on the other hand, if he be a lawyer, expert evidence will have to be adduced upon technical engineering or architectural matters.

The selection of an independent arbitrator therefore rarely satisfies the requirements of expedition and economy, and in the case of a named independent arbitrator it may be that before the dispute has arisen circumstances give rise to a challenge of his independence. It must be remembered that the independent arbitrator (though an engineer or architect) is not in the same favourable position as the engineer or

architect who has been engaged upon the work. It is only where the parties to the contract know at the time of the signing of the contract that the arbitrator might not be wholly "impartial in the ordinary sense of the word" that the Courts will refer the matter to the arbitration of one who is not strictly independent, impartial, and without bias. Thus, where, unknown to one of the parties to the contract, there are circumstances which existed either at the time of the signing of the contract or which arise subsequently likely to produce a bias in the mind of the arbitrator, the Court will refuse to stay an action and submit the dispute to him (81).

3.—Arbitration by two Arbitrators and an Umpire.

This is a form of arbitration very well known and practised in certain trades, where the question to be decided is purely a matter of value or quality of materials or goods. An arbitrator appointed by both sides views the subject matter of the arbitration, and the two meet together for the purpose of coming to some agreement. Failing an agreement, they meet an umpire (who himself has viewed the goods), and he, after hearing the views of the two arbitrators, makes a binding award. This form of arbitration has not obtained much following in engineering and building disputes. The reason is obvious. The disputes which come to be decided in building matters are generally of considerable complication, and usually cover a large period of time. Unless the arbitrator is conversant with the whole of the circumstances, he is unable to come to any proper conclusion, and therefore the dispute is not one which can be settled by independent persons meeting together and forthwith giving their decision.

If this form of arbitration is followed, the arbitrator appointed by the parties must still be an independent person.

4.—Alternative Modes of Selecting an Arbitrator.

From the foregoing it will be seen that none of the generally accepted modes of selecting an arbitrator are entirely satisfactory, and considerable thought and literature have been devoted to the consideration of finding a better mode of dealing with disputes which arise in any contract.

From the building owner's standpoint, several attempts have been made to make formidable disputes impossible. This is to some extent achieved by giving the engineer the sole power and discretion of dealing with questions as soon as they arise. Thus the additions, alterations, and omissions clause, the penalty clause, the defects clause, the final certificate clause, and the forfeiture clause all make the engineer or architect the sole arbiter of certain matters without reference to arbitration at all. As has been seen, however, the power to exercise these powers may in many cases be lost by ambiguity in the contract or irregularity in the manner of exercising the powers, and the arbitration clause, therefore, becomes a safeguard against litigation in the Courts when such powers have been lost.

Many claims arise out of the execution of additional work, and in respect of these matters two suggested clauses in the contract would appear to give security to the building owner:—

(a) A clause which calls for a statement each month from the contractor of every claim which he considers due from the building owner, whether for work executed or for damages, and which states that the contractor shall be deemed to have no

claims except those set forth in the statement, will prevent the building owner from being surprised by antecedent claims which he may have no opportunity of checking.

(b) A clause which states that the engineer or architect shall not be deemed to have power to enter into any new agreement on behalf of the building owner, and that any such agreement shall not be binding upon the owner or the subject of any claim by the contractor unless all the terms of the contract are reduced to writing and signed by the engineer or architect, will prevent the contractor from setting up a new agreement in order to oust the power of the engineer or architect to deal with the questions of value, etc., under his summary discretionary powers.

When, however, all these attempts have been made to prevent disputes from arising they will only be partially successful, and it is therefore important to make very careful provision in case the disputes are of such a nature that they must be settled otherwise. Two alternative modes of settlement have been suggested:—

(a) Arbitration by the Engineer or Architect, and, on His Disqualification, by an Independent Arbitrator.

An extension of the arbitration clause, which appoints the engineer or architect sole arbitrator, has been suggested elsewhere.* This suggestion is that a sentence be added to the effect that if any action is brought by either party to the contract the other party may be at liberty to have the action stayed and remitted to the engineer, or at his option, on expressing his willingness that the matter should go before some other arbitrator, to such other arbitrator.

The advantage of such an agreement would be that if the building owner felt that the matter was one for arbitration by the engineer he could get the ruling of the Court before submitting to the arbitration of the other person; but if, upon the advice of his legal adviser, he felt that the Court would refuse to refer the dispute to the engineer, he could express his willingness to submit to the arbitration of the other person, and so avoid an action in the Courts.

(b) The Deletion of the Arbitration Clause.

This would result in recourse to legal proceedings for the settlement of all disputes. It would not mean, however, that the case would come before a Court and jury, because the judge would in every case involving considerable detailed investigation refer all questions of fact to a special referee. Such referee would either be the official referee or an engineer of eminence, and it is suggested that the expedition and economy of such a tribunal would in many cases be greater than if the dispute were heard before a person less accustomed to arbitration procedure. Upon the findings of fact of the referee the judge would give his decision, which, upon all questions of law, would be far more reliable than any decision given by a layman whose only course in question of doubt is to state a case for the decision of the High Court. Whereas, such latter case goes before the Divisional Court, an appeal from the judge would lie to the Court of Appeal, and therefore, in a case of legal doubt, the highest tribunal would be reached more quickly, and probably with less cost, by having the case brought in the first instance before a judge.

On the other hand, the advantage to the building owner of having the matter deter-

mined by the engineer or architect is so obvious that it is hardly likely that the comparatively few cases in which the Courts have refused to stay an action will deter the building owner from clinging to a clause which may serve him so well.

Cases referred to in the Text:

(72.) *Jackson v. The Barry Railway Co.* (1893) 1 Ch., 238.

(73.) *Cross v. Leeds Corporation* (1902) 2 H.B.C., 369.

(74.) *Eckersley v. Mersey Docks and Harbour Board* (1894) 2 Q.B., 667.—One of the principal questions before the arbitrator was as to the position in the matter of his son who was acting as assistant engineer. If his father decided that he had not acted with due care and skill it was contended that his chance of being appointed to his father's position would be prejudiced, and that therefore his father would have a bias in favour of his son. The Court held that this was not sufficient ground for upsetting the arbitration clause.

(75.) *Nuttall v. Manchester Corporation* (1893) 8 T.L.R., 513.—An application to stay proceedings and refer the matter in dispute to arbitration. It was arranged under the contract that no extra payment was to be made for timber left in the trench unless directed to be left by the city surveyor. In consequence of withdrawing the timber subsidence happened. Disputes arose over the question of the cost of putting right the sewers. The Court held that the matter was not one which ought to be decided by the city surveyor, because his professional capacity was to some extent at stake. There was also the fact that at a certain period there was great friction between the surveyor and contractor. It is clear from the judgment of Lord Esher in *Eckersley v. Mersey Docks and Harbour Board*, that the Court of Appeal laid particular stress upon the "unseemly personal dispute," and that otherwise the case would be now overruled.

(76.) *Freeman v. Chester R.D.C.* (1911) 1 K.B., 783.—An application by the building owner to stay an action and refer the matter to the arbitration of the engineer. The question in dispute was whether the engineer had not precluded himself by his own admissions from asserting that the works had not been completed to his satisfaction and that the period of maintenance had not expired. Held by the Court of Appeal that the engineer was not a proper person to determine this matter as his cross-examination was essential.

(77.) *Aird v. Bristol Corporation* (1912) 28 T.L.R., 278. The matters in dispute, amounting to one-quarter of the total claim, were alleged by the contractors to have been the subject of special agreement between them and the engineer acting for the corporation. The engineer denied the existence of such agreements. The Court of Appeal refused to stay the action, on the ground that the dispute contained matters dependent for their determination upon the engineer's correct recollection of the alleged agreements.

(78.) *Blackwell v. Derby Corporation* (1909), 2 H.B.C., Supplement.—In defence to an application to stay an action brought by the contractors, affidavits were sworn on behalf of the contractors that the engineer (an official of the corporation) had acted unreasonably in the following manner:—(i) By repeated alterations and amendments of the drawings after the contract was signed. (ii) By delay in the delivery of material supplied by other contractors. (iii) By delay in deciding upon the detailed form of construction. (iv) By delay in furnishing drawings. (v) By making alterations in the mode of performance of the contract. (vi) By refusal to allow the contractors to put their materials ahead of the work on the footpath. (vii) By rejection of suitable material. Upon these affidavits the Court of Appeal decided that the real dispute was between the engineer and the contractor, and that the engineer was not therefore a proper person to act as arbitrator. The Court therefore refused to stay the action and refer the matter to arbitration.

(79.) *Roberts v. Hickman*: 1913 A.C. 229.

(80.) *Doleman and Sons v. Ossat Corporation* (1912), 2 K.B. 257.—The plaintiffs brought an action against the defendants for sums due under the contract. The defendants did not apply for a stay of proceedings in the action under S. 4 of the Arbitration Act, 1889, but subsequently to the commencement of the action the defendants' engineer under the Arbitration Clause, without giving notice to the parties and without the knowledge or consent of the plaintiffs, made an award. Held: That it was not competent for the engineer to determine the matters in question pending the action, and that therefore his award was no bar to the plaintiffs' claim in the action.

(81.) *Ranger v. Great Western Railway Co.*: (1854) 5 H.L.C. 72.

(To be continued.)

The British School at Rome.

The British Archaeological School at Rome has just opened its thirteenth season. Dr. Ashby is at present engaged upon the Roman period in Malta; he is also completing his book on the Roman aqueducts and a text for the map of the Roman Campagna in 1547, which the Vatican Library is about to publish. Next year he hopes to accompany the British Association to Australia and make the British School better known there. The façade of the new building in what was the British Pavilion at the Exhibition of 1911, whither the School will migrate in March, 1915, is nearly finished.

* Rimmer's "Arbitration Clause in Engineering and Building Contracts" (Constable & Co.).

THE MATURED ROMAN PALLADIAN SCHOOL.*

BY A. E. RICHARDSON.

CONTINUING our critical study of the Neo-Classic movement, we reach the most brilliant period of the eighteenth century. The ambitions and experiences of the preceding age are augmented and become frugiferous: fresh groups of artists enter the lists, further researches in Italy and Greece are encountered; the main stream of the development in its irresistible course absorbs the best of contemporary French architecture. Such is a reasonable conspectus of the period. Hitherto the majority of writers have consistently decried the eclectic methods of the coteries who flourished during this fascinating age. The value of an academic standard for civil architecture has been scoffed at, the continuity of the tradition refuted, and nothing but decadence hymned. The undue desire to obtain weighty literary contrasts, without due consideration of the minutiae of the subject, has given rise to odious and impertinent comparisons, the critical faculty being mainly exercised to pull down and not to construct. I will quote one authority to silence those who think that the right methods of eclecticism are fallacious. Sir Joshua Reynolds in his sixth Discourse said: "A man enriched by an assemblage of all the treasures of ancient and modern art will be more elevated and fruitful in resources in proportion to the number of ideas which have been carefully collected and thoroughly digested. There can be no doubt but that he who has the most materials has the greatest means of invention; and if he has not the power of using them it must proceed from feebleness of intellect, or from the confused manner in which those collections have been laid up in his mind."

Some Characteristics of the Age.

As we study the period at closer quarters the advantages of foreign travel to the art of the day stand out in greater relief. The efforts of the Society of Dilettanti during the ten years from 1760-1770 were directed with feverish activity, not merely to theoretical inquiry into matters of a past civilisation, but towards the furtherance of a living and contemporary art; the benefits were immediate and commensurate. It must also be remembered that the proposal for the foundation of a Royal Academy of Art emanated from the Society of Dilettanti, who made the first step towards an establishment of this nature. The Royal Academy came into existence and obtained its charter in 1768, with Sir Joshua Reynolds as the first President. In turn this led to the formation, in 1791, of the Architects' Club, with headquarters at the Thatched House Tavern; these gatherings foreshadowed the foundation of the Royal Institute of British Architects.

This time we are concerned with the careers and works of several talented men. We shall find Sir Robert Taylor enthroned, dividing the chief practice of the profession with James Paine; and John Gwynn, the bridge builder, declining the appointment of instructor in architecture to the Prince of Wales (afterwards George III.). It was Gwynn who introduced Mr. William Chambers to Lord Bute for the position. Robert Adam, just returned from Italy, is busily designing the Admiralty Screen in

Whitehall, Chambers is about to publish his treatise on Chinese architecture, Gandon to enter upon his duties as an assistant in Chambers's office in Poland Street. Dance the younger does not return to England from Italy until 1765. Yenn has to become a pupil of Chambers. Thomas Sandby, the first professor of architecture at the Royal Academy, delivers his series of lectures. Leverton builds Bedford Square and employs Bonomi. Lewis publishes his book of design of town houses.

The spirit of the age continues Roman; Piranesi's etchings, the first series of which appeared in 1748, are extended in scope, and collections of them become part of every architect's working library. Gandon mentions with satisfaction the publication of the Ruins of Baalbec and Palmyra in 1753—"works reflecting lasting honour on the country and on the gentlemen who were concerned in it."

In the year 1760 the young George III. ascended the throne. He enjoyed the reputation, according to Horace Walpole, of being a patron of the arts, especially of ancient art. Through the agency of James Adam, the King purchased from Cardinal Albani his grand collection of drawings and prints for three thousand guineas; loudly did the Cardinal's librarian, Winckelmann, protest against the exportation of these treasures from Italy.

Sir Robert Taylor.

Of the group which immediately preceded Sir William Chambers, the most conspicuous figure was Sir Robert Taylor. He was born in 1714 and died in 1788. At an early age Taylor visited Rome, and, returning to England, began as a statuary, carrying out in this capacity two monuments in Westminster Abbey, the figure of Britannia at the Bank of England, and the magnificent sculpture on the pediment at the Mansion House, for the elder Dance. About 1750 Taylor entered into full practice as an architect, and until 1783 was engaged on a vast number of works. Stone Buildings, Lincoln's Inn Fields, were begun in 1756. Nos. 35-36, Lincoln's Inn Fields; Ely House, Dover Street; 70, Lombard Street; the old Patent Office, Quality Court (since pulled down), and Lord Clarendon's House in Whitehall Yard are characteristic works. Between the years 1766-83 Taylor carried out large additions to the Bank of England, including the appendages on either side of Sampson's original centre, and also many of the interior arrangements, including the Bank Parlour. Taylor was succeeded by Sir John Soane, who rebuilt most of his work. In 1780 Taylor erected the bridge across the Thames at Maidenhead.

James Paine.

His contemporary, James Paine, 1716-1780, first acquired fame as the designer of Cusworth, Yorkshire, in 1740. This work was followed in 1744 by the Mansion House at Doncaster, the stables at Chatsworth (1758-63), and the bridge over the Derwent; Dover House, Whitehall (back portion, 1774, the front is Holland's work), numerous mansions in the North of England (1758-1770), and Thorndon Hall, Essex, and Wardour Castle. In 1761 he began Kedleston for Lord Scarsdale. One of the pavilions had already been erected by Brettingham but Paine, asking to be relieved of the work owing to pressure of business, Robert Adam completed the

building substantially from the former's designs.

In 1750 Paine erected Bocket Hall at Stanborough, in Hertfordshire, one of his finest country mansions. Bay windows are introduced at each of the angles, the main feature being the dominating attic. The bridge in Bocket Park and the entrance lodges and the effective screen from the Hatfield Road are evidence of his skill. In 1780 he designed and erected Richmond Bridge, in 1783 the bridge at Chertsey and old Kew Bridge. His son James was a member of the St. Martin's Lane Academy; he studied at Rome and prepared numerous designs, but does not appear actively to have practised architecture. Both Sir Robert Taylor and James Paine gained mastery in their work as time went on, and it is curious to note that the work of both was developing towards that attenuated elegance characteristic of the work of the brothers Adam some time before the Scotsmen descended on London. The works of Taylor and Paine deserve very close study and attention. Both were striving to master that subtlety and rich simplicity which in itself is the keynote of academic architecture; they were keenly appreciative of texture values, and Taylor was assiduous in the selection of ornamental detail. Malton, the artist, published a series of prints giving splendid illustrations of Taylor's work.

Sir William Chambers.

By 1760 Chambers was well on the way to establishing his reputation as a great artist. The star of Roman Palladian architecture was to shine with even greater brilliancy; the myriad lights kindled by the decorations of the brothers Adam were not yet in existence. The age became more polished and refined; the architecture, as a natural sequence, reflected the life and customs of the day. The divergence between the works of the pioneers of the Roman Palladian School and the elegant style of the brothers Adam was held in check by the unaffected and vigorous masculine style practised by Sir William Chambers, who refused to descend from his pedestal to pander to the taste of ultra-fashionable clients. In this regard Chambers remained a staunch champion of the grand or monumental school, while the Adams formed the opposite camp of the elegant and ornamental faction. Within certain specific bounds and each within its own sphere, both divisions of opinion were productive of magnificent buildings.

Chambers was born in 1726 of English parents, at Stockholm. At the age of sixteen he was sent as supercargo on a voyage to China, but on his return he gave up commercial pursuits for the study of architecture, journeying to Paris, and thence to Italy. While in Paris he studied under the young French artist Clersseau and developed conspicuous ability for perspective drawing. In Italy he devoted his attention solely to the study of Roman and Italian architecture, and remained there for nearly ten years, meeting with many distinguished noblemen and other travellers, who afterwards became his patrons. Returning to England in 1755, he was appointed instructor to the Prince of Wales as already mentioned, and eventually became a Royal Architect. In 1757 he published "Designs of Chinese Buildings, Furniture, Dresses, etc.," from the notes he had made in the Orient some fourteen

* The fifth of a series of lectures on "The Work of the English Architects of the Eighteenth Century and the Neo-Classic School of the Nineteenth Century," given at University College, Gower Street.

years earlier. In 1759 he produced "A Treatise on Civil Architecture," considerably augmented by further editions published in 1768-1791. This authoritative work is far the most trustworthy volume written by an English architect during the eighteenth century, and one which even to-day is held in esteem and whose precepts are followed. Chambers's earliest work is said to have been a temple in the grounds at Coleby Hall, Nottinghamshire.

Chambers's Chief Works.

1759: The Theatre and Chapel of Trinity College, Dublin were carried out by G. Meyers from Chambers's drawings, and he also furnished plans for the improvements about that period of other portions of the College, including the bell tower and archway dividing the two courts. 1759: The Casino at Marino, Clontarf. Between the years 1757-62 he laid out the Royal Park at Kew and built the Temples in the grounds as well as the fine Orangery. 1767: Parksted at Roehampton in Surrey. 1767: Duckingstone, near Edinburgh, and the Mansion now the Royal Bank of Scotland in Edinburgh. 1768: An Observatory in Richmond Park. 1772: He published a Dissertation on Oriental Gardening. A second edition appeared in the following year. The stabling at Harewood, Yorkshire, dates from this time. 1770: A Mansion for Lord Melbourne, now the Albany in Piccadilly. Pembroke House, Whitehall. Villa for Sir Joshua Reynolds at Richmond Hill, which I believe to be The Wick. The authorship of this is still under investigation.

Other works include the Lutheran Chapel in the Savoy; Charlemont House, Dublin, for Lord Charlemont; 13 and 53, Berners Street, for his own residence; Market House, at Woodstock; a house in Queen's Walk, Green Park; addition to Blenheim in the style of Vanbrugh; bridge in the Park at Woburn. In 1789 he continued the erection of Cold Bath Fields Prison, and prepared many designs for furniture and decorations, including sedan chairs and coaches.

On the death of Flitcroft, in 1769, Chambers was appointed Comptroller-General of the Board of Works, and succeeded Whitshed-Keene as Surveyor-General of the Office of Works on its constitution in 1782. Among the pupils of Chambers the names of John Yenn, James Gandon, Edward Stevens, Thomas Hardwick, Willey Reveley, and John B. Papworth stand prominent; and through their works Chambers's teachings were extended on to the early nineteenth century.

In the year 1774 Sir William Chambers visited Paris for the second time, ostensibly to improve his acquaintance with French monumental architecture. He appears to have studied the several works of Neuforge, Antoine, and Gabriel; those of the latter, especially a reflection of the contemporary Louis Seize style, are apparent in the ornamental parts of his work at Somerset House.

Somerset House.

At the beginning of the year 1776, Chambers, in his capacity of Surveyor-General to the King's Works, was directed to prepare plans for establishing public offices on the site of Old Somerset House, and to include in the design accommodation for the Royal Academy, the Royal Society, and certain other Government departments. For this work he received a salary of £2,000 a year during the time of its erection. A collection of the original plans, details and working drawings are now preserved in the Soane Museum, bears witness to his tireless energy.

Sir William Chambers, in the execution of

his remarkable group of public offices, achieved the greatest architectural triumph of the Roman School. Some there are who prefer to award the palm to Dance for his design of Newgate, but Somerset House, despite its various defects, is nevertheless an unrivalled example of dignity and fastidious taste. The exquisite character of the carved decorations which adorn every part of the building reflect alike the refined taste of the architect who selected the motif and the loving care of the sculptor who carried the idea into effect. Chambers understood to a nicety the true relationship of the architect to the sculptor, and employed the latter to decorate the building at points of focal interest.

Many of the renowned sculptors of the day lent their talents for the embellishment of Somerset House. Giovanni Battista Cipriani designed all the figures, with the exception of Bacon's symbolic group representing Father Thames, in the Court of Honour; Wilton, Carlini, Nollekens and Ceracchi gave their best. The keystones to the arcade of the Strand front have a symbolic meaning in connection with the ocean and various British rivers.

Thomas Hardwick, who wrote a memoir of the accomplished architect, said: "To Sir William Chambers we are indebted for many improvements in the interior decoration of our buildings. He introduced a more graceful outline, an easy flowing foliage, and an imitation of such flowers and plants and other objects in nature as were best adapted to the purposes of architectural ornament."

His views on the importance of travel to an architect are well known. "Traveling," says Chambers, "rouses the imagination; the sight of great, new or uncommon objects elevates the mind to sublime conception."

A Criticism of Somerset House.

Chambers developed the rare gift, which he held, of being able to grasp the varied points of a plan problem, and, further, to present them in the form of a consistent scheme. Regarded solely as an example of academic planning the disposition of the blocks of buildings at Somerset House is excellent, but the high standard of composition attained in the plan was not wholly extended to the elevations. As individual blocks each separate group is superb, the climax to the conventional scenery being the magnificent group fronting the Strand, which, viewed from the Court of Honour, satisfies the most critical eye. And the majesty of the Strand frontage is unrivalled. But once the glorious vestibule is passed and the courtyard reached, one searches in vain for a feature sufficiently impressive to dominate the grouping from the southern extremity. Chambers failed, in this composition, properly to unite the elevation of the buildings parallel to the river with the group forming the Strand block. It is apparent that he feared a double climax, and followed a tamer course by introducing an unworthy dome with supporting turrets to the side wings. The river front, considered as a series of terraces rising from the water line, is extremely fine, but the flat dome is far from convincing, as well as being unrelated to such a lengthy façade. On the other hand, if all the traffic had entered the building from the river frontage and directly approached the head of the plan, namely the Strand frontage, then the above argument would be null and void. Yet compared even with such a masterpiece of French architecture as the Cour d'Honneur at Compiègne, by Gabriel, the grouping of the courtyard at Somerset House shows superiority.

James Gandon.

James Gandon, the talented pupil of Chambers, was born in 1742. He studied at Shipley's Academy, and later, in 1764, commenced practice, publishing in connection with James Wolfe, a continuation of Campbell's "Vitruvius Britannicus." His works comprise the following: 1768: First Gold Medal at the Royal Academy. 1769-70: The County Hall and Prison at Nottingham; screen wall for Mrs. Montague in Portman Square. 1769: Third Premium for the Royal Exchange, Dublin, afterwards erected by Cooley.

Gandon's Work in Ireland.

1780: The Custom House, Dublin. 1781-1784: Court House and Gaol for Waterford. 1786: Completed the Four Courts, Dublin, begun by Thomas Cooley, and considerably improved the scheme. 1802: Screen walls for the same building. 1786: Additions to the House of Commons, Dublin (the design for the south wing was appropriated by Parke). 1791-4: Carlisle Bridge, Dublin, since demolished. He gratuitously gave the plans for the hospital in Phoenix Park, but not for the cupola. 1785: The charming King's Inns, or Temple, at Broadstone, completed by his pupil Baker for the legal centre of Dublin. 1782: The small library at Charlemont House and various additions to mansions in Ireland.

Gandon proved himself to be a worthy successor to the style advanced by Sir William Chambers. He found very little of architectural interest in Dublin when he accepted the invitation from the powerful Beresford family to go to Ireland, fighting every difficulty, including a truculent Corporation, who, at the Customs House, overthrew his walls as they were built. Gandon established the Neo-Classic so firmly on Irish soil that in the work to-day the influence is yet apparent and his teachings are still revered.

VICTORIA TOWER GARDENS IMPROVEMENT.

A notable improvement to the neighbourhood of the House of Lords is now being effected by the Office of Works. It consists in an addition to the Victoria Tower Gardens of a piece of ground about 300 yards in length facing the river. The ground was formerly covered by wharves and slums. These have been cleared away and the site presented by the London County Council to the Office of Works with a sum of money for its development. The Embankment has been carried from the House of Lords the whole length of this addition as far as Lambeth Bridge. The ground is being laid out as a public garden and planted with flowering trees and suitable plants, under the direction of the Superintendent of Parks and Gardens of the Office of Works. The garden will be encircled by a handsome railing, modelled, with certain modifications, on specimens of similar work in the Victoria and Albert Museum, and having the King's cipher introduced into the design. Rodin's group, "The Burgurers of Calais," is to be placed on the site in the older part of the Victoria Gardens, with the Victoria Tower as a background. This site has the unqualified approval of the sculptor, by whom, indeed, it was selected as the best of a number of sites offered to and inspected by him in London. The group has been for some time in London, being at present stored in the House of Lords, and it is hoped that it will be unveiled about March next.

SOCIETIES AND INSTITUTIONS.

BIRMINGHAM ARCHITECTURAL ASSOCIATION.

On Friday, November 28th, Mr. W. H. Ward delivered a lecture before the above association on "French Architecture in the Eighteenth Century." Mr. G. Salway Nicol occupied the chair. The study of French architecture, said Mr. Ward, was beset with assertions of rival writers, who had felt bound to fix a date after which, according to them, the floodgates of pedantry or license or what not had been opened, with the result that ever afterwards architecture sank deeper and deeper into the mire. If there were any substantial agreement between these writers as to the period at which this catastrophe occurred it might be fairly plain sailing, but, unfortunately, between them they fixed some dozen different dates ranging over three or four hundred years. Since there was no agreement as to the point when decline began, they might be excused for assuming provisionally, that it had not definitely set in even yet, and that in the architecture of modern France there was always hope of revival, even if the conditions of the moment appeared uncompromising; and, looking back upon its history, they might see in it an evolutionary growth in which transformation succeeded transformation.

The period of the eighteenth century yielded much food for study. It appeared at first sight to be divided into two sharply defined stages differing *toto caelo* from each other in aims and methods. But on closer examination it was seen that the differences between the first and second halves of the century were, in the main, superficial—questions of detail and decoration—and that they had much in common in that they both rested on the solidly and slowly built-up tradition of centuries of experiment and achievement in the expression of national requirements in classical forms. Regarded as a whole, the eighteenth century carried on the tradition of the Grand Manner of the age of Louis XIV., but in detail it was a reaction against the ideals of the age, this reaction taking one form in the so-called Louis XV. style and a second in an opposite direction, intensified by the excesses of the first, in the so-called Louis XVI. style.

The more closely one studied eighteenth-century architecture, whether in France or in England, the more conscious one became of two points of similarity. On the one hand, in spite of occasional exaggerations or pedantries, due to temporary fashions or to the idiosyncrasies of individual architects, an extremely high level of achievement was attained and maintained throughout it; and, on the other, a century which began with much of the bombastic extravagance and coarseness of the barocco tradition gradually felt its way to purer, more refined forms without losing its figure or its dignity. The high average was due in large measure to the fact that the language of classical forms and composition had become the vernacular mode of architectural expression in both countries, not merely among the élite of the profession in the capital, whose example handed on the tradition from one generation to the next, but even in humbler circles and provincial centres, among country architects and workmen. The gradual process of refinement was the result of a revival of studies of ancient architecture at the fountain-head, provoked in part by the excesses of the baroque school and stimulated by new discoveries made throughout the country by the exploration of the buried cities of

Campania and the ruins of Sicily, Greece, and the Levant.

The eighteenth century, then, so far from being an age of decline, was not even one in which architecture marked time, but a period of continuous progress, reaching, in fact, a kind of culmination; and, if decline must be diagnosed somewhere, it might with more justice be assigned to the succeeding period. But lest he should lay himself open to the charge of having ignored his own danger-signals, he would add that, although nineteenth-century architecture in France showed the same confusion of aim as in other countries, in the stronger hold which it maintained on the national classical tradition it possessed a steady force and a factor favourable to healthy revival.

The chief reason, as he had said, for the maintenance of a high average by eighteenth-century architecture was that the classical tradition was thoroughly assimilated by all ranks of the building profession. But there were contributory causes. One of these was the existence of families which produced architects from generation to generation and thus accumulated and handed on experience.

ARCHITECTURAL ASSOCIATION OF IRELAND.

An ordinary meeting of the Architectural Association of Ireland was held on November 20th, Professor W. A. Scott presiding.

The following were admitted members of the Association:—Messrs. Arthur Hill, F.R.I.B.A. (Cork); Noel E. Scott, Wm. N. Spence, F. A. Stuart King, James Bruce, Harold Britton, L. H. Deane, Architect, L.G.B., James J. O'Donnell, and J. D. Foley.

Mr. W. Kaye-Parry, B.E., delivered a lecture on sanatoria. Starting with the selection of the site, which should be always on high ground sloping to the south, with, if possible, porous subsoil, and sheltered from cold winds and driving rain, Mr. Kaye-Parry went into details of the plans, from the central administration buildings to the pavilions, the size and aspect of the sleeping apartments for the various classes of patients, accommodation for the staff, water supply, drainage, isolation wards for observation of fresh cases, operating theatre and sterilising room, dispensary, open air schools, chapels, lighting, etc.

The lantern slides were lent by the Countess of Aberdeen, and mainly illustrated the new sanatorium at Peamount. Mr. P. J. Lynch proposed a vote of thanks to the lecturer and said that the country owed Mr. Kaye-Parry a deep debt of gratitude for having kept the important question of sanitation before the profession and the public for the past twenty-five years. Mr. Dewhurst seconded, and Count Plunkett, Messrs. F. Shaw, G. F. Beckett, and L. F. Giron supported the resolution, which was carried. Mr. Kaye-Parry, in reply, paid a warm tribute to the Countess of Aberdeen for the generosity and energy with which she is fighting disease and insanitary conditions throughout the country.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

At the opening meeting of the above society, held on November 20th, Mr. A. E. Kirk, A.R.I.B.A., delivered his presidential address, from which the following extracts are taken.

The School of Architecture, he said, continues to do good work under the able guidance of Mr. Coombs, though it is to be regretted that recognition by the R.I.B.A.

is withheld. During the year, it has been visited by Mr. Blomfield, on behalf of the Board of Education, and also by Mr. Needham Wilson and Mr. Gerald Horsley on behalf of the Board of Architectural Education of the Institute, who all reported favourably on the work being done. This year students will have the benefit of visits from practising architects in the city, Messrs. W. H. Thorp, S. D. Kitson, and J. C. Procter having undertaken the task.

A committee has been appointed by the Institute, consisting of all the Presidents of the Allied Societies, to deal with the redistribution of the districts allocated to the provincial societies. There is a feeling that the various societies have but little influence over their areas at the present time. For instance, our Society roughly embraces from Settle in the north to Barnsley in the south, and from Halifax in the west to Hull in the east, so, as may be imagined, we do not possess much influence in the moorland wastes of Yorkshire, nor at such a distance as Hull. Our neighbouring societies, Sheffield and York, met in Leeds during the autumn, and we came to the conclusion that it would be better to form a new society with Hull as its centre, to deal with the East Riding of Yorkshire—York to take the North Riding, and Sheffield and Leeds to share the West Riding. All practising architects in the East Riding have been circulated as a result of this meeting, but no decision has yet been arrived at.

It has been the custom in these annual addresses to give some account of the most important buildings of the year, but I regret to say that within the city there is little to mention; stagnation in the building trade, so far as Leeds is concerned, continues.

It appears that the general idea of architecture is that it is an ornament applied to buildings. The public knows very well what building is, and that it cannot get on without it. It must have its houses to live in, its shops to do its work in, to sell its goods in, and its warehouses to store them in, and these are buildings, but not necessarily architecture. There is a feeling, however, which can be described as a sense of civic decency, and it makes men require that public buildings and buildings in important public places shall be what they call architectural. But if the fronts are sufficiently ornamental and look costly the public are quite content.

Architecture should consist of three attributes—utility, stability, and beauty, and man without knowledge of construction is incapable of directing buildings, artistic or otherwise. Therefore, he is not an architect. He may be a man of good taste and skilful in the application of ornament to surfaces which he finds ready for it. True architecture is as far from being mere ornament that it may exist almost without ornament, and depend upon massing and proportion. Ornament is one of an architect's means, and he will seldom altogether neglect to use it; but a building of much grandeur and dignity may be obtained by the right use of the forms of construction only, without ornament of any kind. The late Mr. Bentley's Roman Catholic Cathedral at Westminster was a most impressive building; even before the veneer was applied to the interior. On the other hand, the most beautiful ornament will not give architecture to a building which lacks it, for at the utmost it can but conceal defects as a cloak may conceal a deformity. For real architecture can no more exist without construction than can human beauty without the structure of bone and muscle, of which it is external form. A good deal of

what is presented to the public as architecture, and contentedly accepted as such, is merely building decked out with applied ornament which might all be left out without affecting the structure of the work, perhaps with gain in appearance. So long as the public are satisfied with such work so long will they be served with it.

Architecture in England is certainly alive. We have left behind a striving to be original for originality's sake, and are now working on sound lines, trying to pick up the motive left us by Wren and Cockerell; and in so doing we shall in time work out to its logical conclusion our own traditional phase of the Renaissance.

After the presidential address, prizes were presented to the successful students in the Society's competitions as follows:—

President's Prize, £5 5s. and Silver Medal for Measured Drawings: Mr. Norman A. Blackburn (drawings of Oakwell Hall, Yorks). Second Prize, £2 2s.: Mr. R. L. Palmer (drawings of Sherbourne Church, Yorks.).

Design Competition: Mr. L. Foster, first prize, £3 3s., and Mr. Harold Beard, second prize, £1 1s.

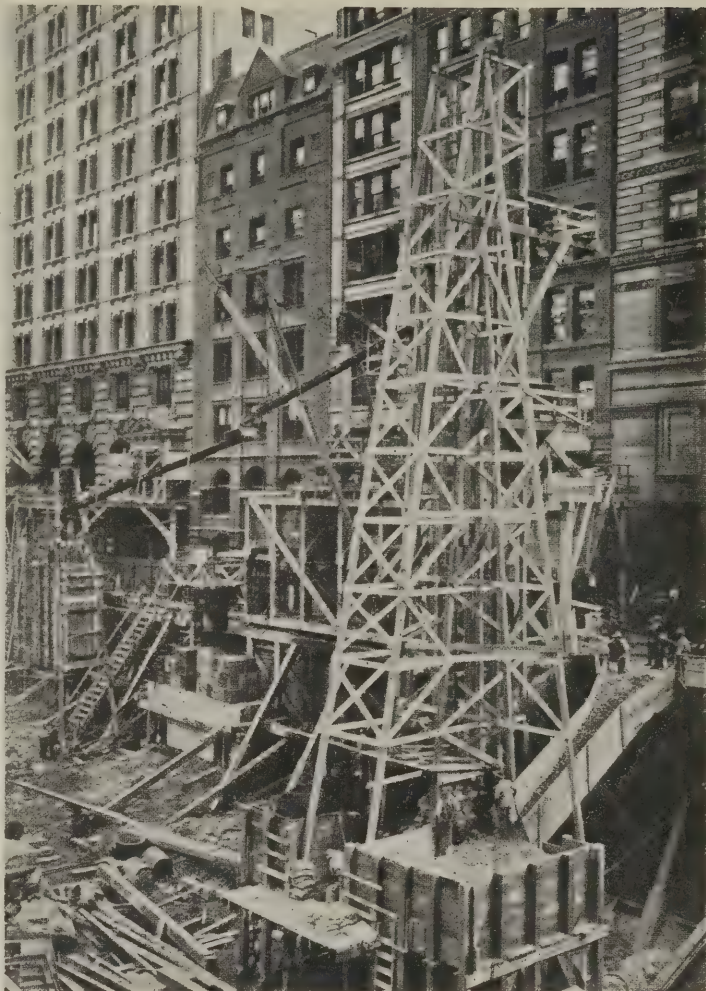
Sketching: Mr. L. A. Elsworth, Society's prize of £3 3s. and Sketching Club prize, £2 2s. (black and white sketches and detail studies).

Halden Prize, value £4 4s., for best set of Testimonies of Study for R.I.B.A. Intermediate Examination: Mr. Eric Ramsden.

Prize £3 3s. for best set of notes and sketches prepared in study of Architectural History, for the R.I.B.A. Intermediate Examinations: Mr. C. B. Chadwick.

ROYAL ARCHÆOLOGICAL SOCIETY.

Lecturing last week on "Mediaeval Roofs" before the Royal Archæological Society, Burlington House, Mr. F. E. Howard said that the varieties of roofs were enormous, but the types, which merged into each other, might be generalised in two main divisions, as those that were a dead weight on the walls and those that tended to thrust the walls apart. There had been, he thought, a misunderstanding on the part of modern writers as to the principles of mediaeval roof construction, and this he attributed to failure to recognise the limitations that beset the ancient carpenters. The pegs that they used were useless to resist tension or strain. Moreover, the carpenter's trade was the most conservative in the world. Yet it appeared that with all the mistakes in construction, where there was failure it was the walls that failed and not the roofs, and the rods across the nave under the roof that appeared in some pictures were solely for the support of the walls. Speaking of the barrel roofs of the West Country the lecturer referred to examples of the thrust of the gables in the nave roof being met by the thrust of the aisle roofs, and, with strong walls, buttresses were of little use in these cases. The Devonshire roofs had a charm of their own, due to the curve of the rafters and rich carving. Somerset had no uniformity of construction, but a typical roof was flat and ornamented with small panels and elaborate carving. Some of the wide and lofty churches of East Anglia had roofs of much interest, with arched braces, hammer-beams, and buttresses, the wall posts being brought down so that the thrust was conveyed through the roofs of the aisles to the buttresses. In this way the Gothic builders had come near the perfect solution of a difficult problem, and would have quite succeeded if they had made the wall posts strong enough.



MOVABLE CONCRETE CHUTING TOWER, NEW YORK.

MANCHESTER, SALFORD AND DISTRICT BUILDING TRADES EMPLOYERS' ASSOCIATION.

The half-yearly general meeting of the above Association was held at the Boardroom, National Buildings, St. Mary's Parsonage, Manchester, on Thursday, November 20th.

The Secretary's interim report, which was presented and adopted, in dealing with the work of the Association, indicates a large influx of members—some fifty new firms having been elected during the half-year.

Notices for advances in wages were reported as having been received as follows:—Wall tilers, 1d. per hour, from March 1st, 1914; wood-cutting machinists, 1d. per hour (10d. to 11d.), from May 1st, 1914; slaters and roof tilers, 1½d. per hour (9d. to 10½d.), from May 1st, 1914.

An effort is shortly to be made to secure amended conditions of contract with the Manchester Corporation, the present form being claimed to be obsolete in many respects.

At the close of the meeting a presentation was made by the president, on behalf of the members, to Mr. James Denver, Secretary of the Association, consisting of a canteen of cutlery, a silver flower stand and hot-water jug, and a clock, to commemorate his marriage. Mr. Denver has been in the service of the Association for fourteen years—twelve years as assistant to the late John Tomlison (the late secretary), and two years as secretary.

A MOVABLE CONCRETE CHUTING TOWER.

The interesting apparatus shown in the accompanying illustration is being employed in the construction of the pneumatic-caisson foundations for the thirty-eight-storey Equitable building in New York. The caissons are built on the bottom of the preliminary excavation, about 25 ft. below the curb, and the concrete for them is mixed in three ½-yd. Ransome machines installed in three movable wooden towers 85 ft. high.

The concrete material is delivered daily by waggons and chuted from street level to storage bins of 50 yd. capacity built in connection with the towers. The bins deliver by gravity to the charging hoppers of the mixing machines, and the latter deliver to hoists in the towers, from which the concrete is distributed by a system of suspended chutes to any point on the site.

As a large portion of the area of the site is covered by the caissons and piers, it is difficult to place the towers so that they will not interfere with the substructure work. They are therefore built, together with their storage bins, on horizontal timber sills, which enable them to be easily moved in any direction in order to clear or reach any given pier and then to be moved back again if necessary to clear or reach other piers.

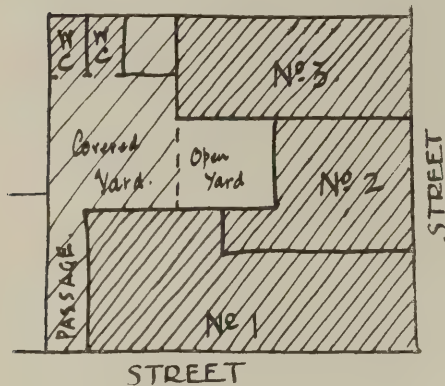
The three plants have each a capacity of forty batches of concrete per hour for the machine and for the hoisting apparatus, allowing for all reasonable delay.

ENQUIRIES ANSWERED.

Premises Within the Same Curtilage.

"QUERCUS" writes: "Would the three dwelling houses shown on sketch plan be considered as 'premises within the same curtilage' in the definition of drain in Section 4, Public Health Act, 1875?"

—I think that there is no doubt that the



whole block of three dwelling houses would be correctly described as being "within the same curtilage" and, provided that they are all owned by the same person, the pipe taking the sewage from them would legally be "a drain" and not "a sewer." F. S. I.

Thickness of Retaining Wall.

M. P. S. writes: "Please give the graphic method of determining the thickness of the wall shown on the accompanying diagram, with description of application, etc. Does the resultant require to fall within the middle third in order to be secure from overturning?"

—Fig. 1 shows the section of wall as submitted, which is a very uneconomical design, as the centre of gravity is thrown so far forward. The thrust of earth and weight of wall give a resultant falling at

the extreme edge of the section, and failure would be likely to occur from tension. A full description of the method of working these graphic diagrams will be found in "The Mechanics of Building Construction" (Longmans, 6s. net) by the present writer. Fig. 2 shows a proposed section which is not subject to the same disadvantages. The resultant falls 1 ft. beyond the centre of the section, giving a maximum compression of 2,625 lb. per sq. ft. and tension of 525 lb. per sq. ft., against 5,288 and 2,548 respectively for Fig. 1.

HENRY ADAMS.

Stanchion to Carry Wall.

M. J. writes: "Is the stanchion shown on accompanying sketch sufficiently safe to carry wall over?"

—The 16-in. rubble wall will weigh about 2 cwt. per ft. super. The weight of roof timbers, covering, ceiling, and wind will be about $\frac{1}{2}$ cwt. foot super. The load

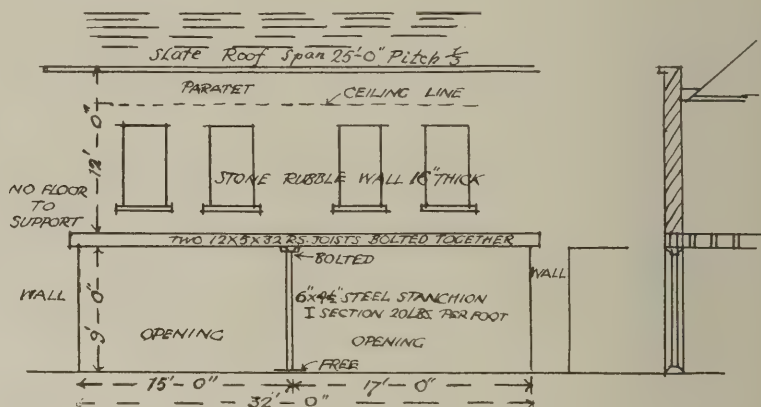
tion to carry this will be 6 in. by 5 in. b. 25 lb., with proper riveted cap and base plate. It must be remembered that with a continuous girder over two spans the load on the middle support is about five-eighths of the total, instead of half as might be expected.

HENRY ADAMS.

Formula for Columns and Stanchions.

ENQUIRER writes: "Please recommend a good, simple formula for the strength of cast-iron columns and mild steel stanchions."

—Fidler's "practical formula" for columns is probably the most accurate that is known at present, but it is cumbersome to use. The following useful tables are given in the London County Council (General Powers) Act, 1909, for the maximum working stresses due to the load thereon (other than stresses induced by wind pressure).



STANCHION TO CARRY WALL.

to be carried by the stanchion will be made up as follows: $\frac{5}{8} [2 (32 \times 12 - 4 \times 6 \times 3) + 5 (32 \times 12 \times 5 \times 1.25)] = 546$ cwt., say, 27½ tons. The lightest possible sec-

Cast-iron Pillars.

Ratio of Length to least Radius of Gyration.	Working stress Tons per sq. inch, not section. Both ends fixed.
20	4.5
30	4.0
40	3.5
50	3.0
60	2.5
70	2.0
80	1.5

Mild Steel Pillars.

Ratio of Length to least Radius of Gyration.	Working stress Tons per sq. inch, not section. Both ends fixed.
20	6.0
40	5.5
60	5.0
80	4.5
100	4.0
120	3.5
140	3.0
160	2.5
180	1.5
200	0.5
210	0.0

Simpler approximation to safe loads:—

Cast-iron Columns.

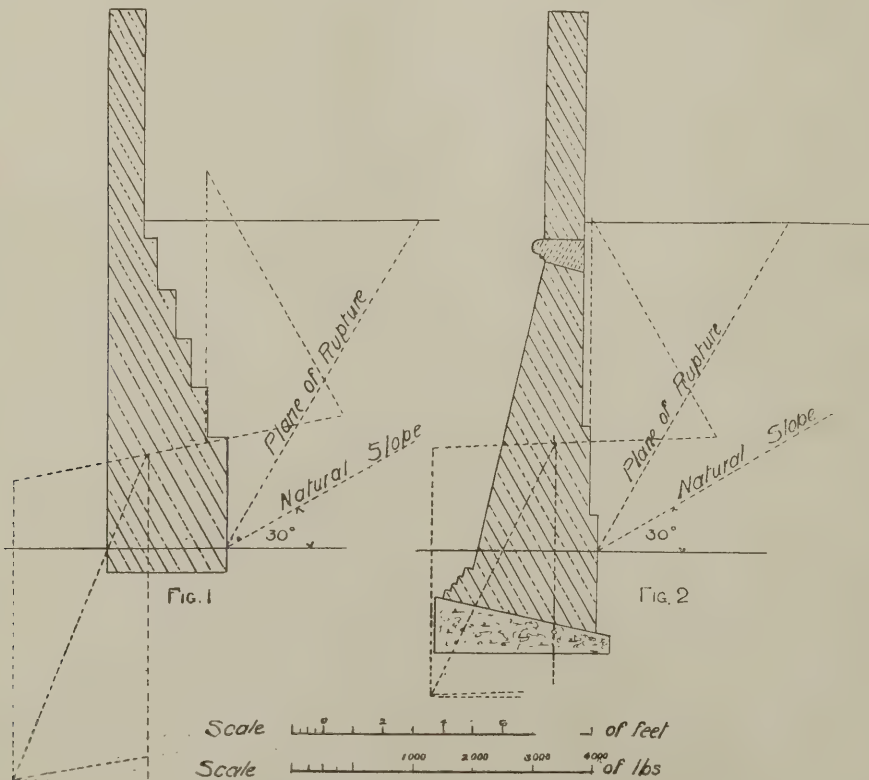
For a thickness of 1-12 diameter:			
Up to 10 diam. long	=	5 tons per sq. in.	
10 " 15 "	"	=	4 " " "
15 " 20 "	"	=	3 " " "
20 " 25 "	"	=	2 " " "
25 " 30 "	"	=	1 1/2 " " "
30 " 35 "	"	=	1 1/4 " " "
35 " 40 "	"	=	1 1/2 " " "

Mild Steel Stanchions.

Up to 10 diam. long = 1.75 tons per sq. in.			
10 " 20 "	"	=	4.0 " " "
20 " 30 "	"	=	3.25 " " "
30 " 40 "	"	=	2.5 " " "

All simple formulæ are more or less unreliable.

HENRY ADAMS.



THICKNESS OF RETAINING WALL.

OBITUARY.

Mr. George B. Post.

The death is announced of Mr. George Browne Post, one of the foremost architects of the United States. He died on Friday, November 28th, at his home at Bernardsville, New Jersey. Mr. Post, who was seventy-five years of age, was born in New York. He was educated as an engineer in the University of New York City, and graduated in 1858. It was in that year that the late Richard Morris Hunt first opened his atelier for students, and Mr. Post entered this school at the same time with the late Charles D. Gambrill, who was his first partner. In the year 1861 the Civil War took him away from his practice, and kept him for some years in the service of his country. This dissolved the partnership of Gambrill and Post. During the war he held rank successively as captain, major, lieutenant-colonel, and colonel in the New York Volunteers. The war over, Mr. Post returned to the practice of architecture, and began to come into prominence about the year 1875, as the architect of large and important buildings, and during the years that have since elapsed his business has been one of the largest in the United States. After the death of Gambrill Mr. Post took into partnership his two sons, Mr. William S. Post and Mr. James Otis Post.

The late Mr. Post's work may be classified into four principal divisions as to time and style: First, his engineering period, when he produced the very large, important, and altogether hideous Pulitzer building, Park Row, New York, and one or two others equally unlovely; secondly, his experimental period, when he became more interested in the beautiful side of his work, and presented the Produce Exchange building, at Bowling Green, the old "Times" building, in Park Row, the Union Trust building, in Broadway, New York, the first Prudential building at Newark, N.J., and the building of the Erie County Savings Bank, at Buffalo, N.Y.; thirdly, his period of development, when



THE LATE MR. WALTER EMDEN.

he produced the Cornelius Vanderbilt town house—probably to-day the largest in New York—the Liberal Arts building at the Columbian Exposition, the Bank of Pittsburgh, and the park building at Pittsburgh, Pa., and the Huntington residence in Fifth Avenue, New York; and fourthly, his period of achievement, which may be said to have begun with the strong design which won him the competition for the building for the Department of Justice at Washington, D.C., about fourteen years ago. This building is a scholarly study in architecture, at once classic, modern, and distinctly American.

For several years following the Columbian Exposition Mr. Post's work was almost exclusively of commercial character—the gigantic office building being his portion—and with this class of work he kept busy a large number of draughtsmen. An article on the work of Mr. Post, accompanied by a portrait and a number of illustrations of buildings carried out from his designs, appeared in our issue for December 31st, 1909.

Mr. Walter Emden.

We regret to record the death of Mr. Walter Emden, which occurred in a London nursing home on Tuesday, December 2nd, subsequent to an operation which had been performed on the preceding day.

Mr. Emden, who was sixty-six years of age, was a son of the late Mr. W. S. Emden, who was for many years part proprietor of the old Olympic Theatre. The late Judge Emden, of Lambeth County Court, was uncle to the deceased architect.

Mr. Emden began life as a mechanical engineer, studying under Messrs. Maudsley, Son, and Field. He subsequently held positions in connection with the construction of the Thames Embankment, the East London Railway, the Mid-Level Sewers, and other large works. Later he turned his attention to architecture, receiving his training in the offices of Mr. Kelly and Mr. Charles Lawes, both of whom were

Fellows of the R.I.B.A. He designed many important buildings in London, including Prince's Restaurant, Piccadilly, Carr's Restaurant, St. Clement Danes, Hôtel de l'Europe, Leicester Square, and he was associated with Mr. William Woodward in the design of the new Piccadilly Hotel, for the exterior of which the late Mr. Norman Shaw was responsible. Mr. Emden also designed a large number of theatres, both in London and the provinces; they include Terry's in the Strand, the Garrick, the Court, the Duke of York's, the Tivoli Music Hall (which is shortly to be demolished), and others at Ipswich and Southampton. He was president of the Society of Architects (to whom we are indebted for the accompanying portrait) from 1897 to 1900. He retired in 1906, when his practice was taken over by four of his principal assistants.

Mr. Emden took an active part in local government affairs.

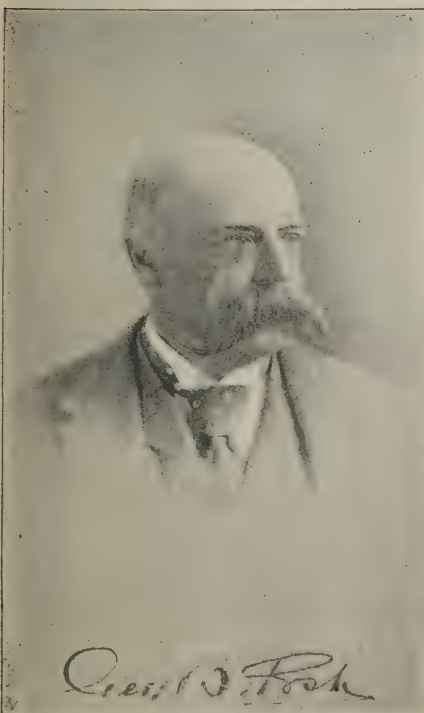
In 1892 and 1898 he represented the Strand Division on the London County Council, and in the latter year he acted as chairman of the Strand District Board of Works. In 1900 he was elected an alderman for the City of Westminster, serving as Mayor in 1903. In 1907 he became Mayor of Dover, an office which he held for three years in succession.

Mr. William Farnish.

The death has occurred of Mr. William Farnish, an eminent Bradford builder. He erected the Cartwright Memorial Hall, the Bradford Old Bank buildings, the Post Office, and the Esholt sewage press-house. Mr. Farnish was sixty-four years of age.

Mr. William Brass.

The death has occurred of Mr. William Brass, a well-known City builder and one of the largest ratepayers in the City of London. Mr. Brass had been identified of late years with the remodelling of several of the by-ways in the neighbourhood of the Stock Exchange.



THE LATE MR. GEORGE B. POST.

THE CORROSION AND RUSTING OF IRON.

Lecturing on the above subject on Monday, December 1st, before the Society of Engineers, Mr. Eric K. Rideal said that a certain number of failures in constructional ironwork may be attributed to corrosion, and rusting is a problem of the greatest importance to the water engineer. The author was a supporter of the electrolytic theory of corrosion, and believed it to be perfectly tenable when due attention was paid to considerations such as alterations in the solution-pressures on crystal surfaces, and to the phenomenon of passivity shown by this metal.

Corrosion was due either to internally generated electric currents or to those from external sources. The theory was applicable to the problems of rusting in ferro-concrete, waterpipes, and structural ironwork, as well as to the action of stray currents from tram-rails, damp electric light leads, and telephone cables.

In the light of that theory both the plating of iron with metals and covering the surfaces with paints and varnishes were to be regarded as means to an end—namely, to prevent the formation of local "corrosion cells." The effect of pitting in steel pipes was to be attributed to inclusions of slag and oxides of iron.

Metallic coatings must be perfectly uniform in character, otherwise rusting might be augmented instead of retarded by such processes, while paints should be applied to clean surfaces and should possess certain definite characteristics, such as high specific electrical resistance, a pigimentary vehicle that did not readily liberate water during the process of aerial autoxidation and was not permeable to water vapour when thus oxidised, and pigimentary particles not widely separated from iron in their electrochemical potential.

The protection of boilers by protector metals such as zinc being placed in the boiler, or the application of an externally supplied current were direct applications of the theory. The various methods of testing corrodibility were all open to criticism, and the effect of additions to pure iron had not been sufficiently well investigated for any definite conclusions on the subject to be drawn.

MANSION HOUSE STATION SUBWAYS.

The subways which have been under construction since January last at the point where Cannon Street crosses Queen Victoria Street constitute an important addition to the subway facilities which are being provided at dangerous crossings in London. The main subway, which has been constructed to give communication from east to west, extends for a distance of 260 ft. under the longest length of roadway at this crossing. From the centre of the main subway cross-subways have been constructed to give communication to the corner of Bow Lane and to Mansion House Station; these increase the total length to about 325 ft. The design adopted by Messrs. Moss and Hay, the consulting engineers, follows in its main features that of those previously constructed. The subways are 10 ft. wide and 7 ft. high, and the roof throughout is of steel troughing, carried where necessary on steel girders. The walls are lined with tiles, and the footway is of asphalt.

A good deal of work in the diversion of

sewers and pipes has been necessary in consequence of the shallow depth of the subway, the pavement of which is from 11 ft. to 12 ft. below street level. The most important diversion was that of a big L.C.C. pipe main, which had to be lowered 7 ft. over a length of about 50 ft.

At Mansion House Station, on the District Railway, a new booking-hall has been built, at a lower level, to facilitate direct communication with the subway.

Work has not yet been completed on the cross-subway to Bow Lane, which will not be available for a few weeks. The work has been carried out by Messrs. Mitchell Bros., the cost, estimated at between £11,000 and £12,000, being defrayed by the Corporation.

SPECIAL LEGAL REPORTS.

Building Contract: Power of Architect, *Trollope and Colls Ltd., v. Singer.*

December 1. King's Bench Division. Before Mr. Justice Channell.

This matter came before the Court on a special case. (See our issue of November 26th, p. 491.)

It had reference to a dispute arising out of extensive alterations to the residence of Mr. W. G. M. Singer, of Norman Court, near Salisbury.

The plaintiffs, Messrs. Trollope and Colls, Ltd., sought to enforce an arbitrator's award in their favour.

Mr. A. A. Hudson, K.C., for the plaintiffs, said the firm in question entered into a contract in February, 1909, to carry out certain extensive alterations to Norman Court, the country seat of Mr. Singer. The first of these, for alterations and additions, was for £7,789, and the second, which had relation to the rebuilding of the kitchen block, was for £1,462. The contracts were summer contracts and were to be concluded by August 9th, and there was a penalty clause in the event of the contractors not finishing in time. There was no dispute as to the work done and price which was paid, which came to £9,412, but the disagreement arose over a claim of the plaintiffs for damages caused from delay alleged to be caused by defendant. Mr. Singer took a great interest in the whole of the work and desired to be consulted by the architect on every one of the intricate details connected with the work, with the result that there was great delay in the ordering of the work, and instead of the contract being finished in twenty-four weeks it ran on to thirteen months, making the contract a winter one, and that led to great difficulty and additional expense in carrying on the work. Having protested at the delay during the work, the plaintiffs finally claimed an additional £1,400 on the contract. The defendant counter-claimed liquidated damages for not finishing in time. The arbitrator found in favour of plaintiffs for £1,318 16s. in a stated case.

The defendant, who was represented by Mr. Sankey, K.C., contested the award on the ground that as the architect had power to extend the time for the contract there could not be any claim for damages for extension of time, and further, with regard to certain of the work, the said time being the essence of the contract, the contractor had committed a breach of contract and had therefore no grounds of action.

His Lordship said he could not see why, because the time was extended, that should deprive the contractor of his remedy, not merely in relation to the time of the com-

pletion of the contract, but also of any pecuniary damages, he might have sustained through the work being delayed. He thought there was nothing which took away his rights in this respect, and he must decide against the employer.

He gave judgment for the plaintiffs with costs.

Undeveloped Land Duty: Building Land Judgment Reversed by the Court of Appeal.

Southend-on-Sea Estates Co., Ltd., v. The Commissioners of Inland Revenue.

December 1. Court of Appeal. Before the Master of the Rolls and Lords Justices Swinfen Eady and Phillimore.

This was an appeal by the Southend-on-Sea Estates Co., Ltd., from a judgment of Mr. Justice Scrutton, sitting in the King's Bench Division (see our issue of November 12, page 454).

Before Mr. Justice Scrutton, the company appealed from a decision of one of the Referees, which arose under Section 17 Sub-section 5, of the Finance Act, 1910. The company were the owners of certain property in Southend within the extended borough and away from the more thickly populated parts, where building was taking place, known as South Church Wick, comprising 105 acres of agricultural land. It was let on a lease to a Mr. Bentall, but that lease expired in September, 1911.

In the lease there was a covenant reserving to the lessors full liberty for them to resume possession for building or other purposes of any part of the land. The Commissioners had assessed the land for undeveloped land duty, and the petitioners as owners of the land, said this was wrong. They claimed that the whole of the land was agricultural land on April 20th, 1910. The question came before the Referee, who decided that the appellants having power to resume possession of the land for building, it was therefore liable to be assessed for the payment of undeveloped land duty.

Mr. Justice Scrutton, in dismissing the appeal, with costs, said he did not think the fact that a person who could exercise power did not desire to do so showed that it was not possible to determine. It was possible that the man who had the option did not want to use it.

From this decision the company appealed.

The case was argued for the appellary company by Mr. Hawke, K.C., and for the Crown by the Attorney-General, Sir John Simon, K.C.

The Court allowed the appeal, with costs.

The Master of the Rolls said this was a case which, in accordance with the settled law, the landlord could not at any moment between April, 1909, and the determination of the lease have resumed possession. The being so, the case did not come within Sub-section 5 and the appeal would be allowed.

The Lords Justices concurred.

Builder and Contractor's Suit for Slander *King v. Crosher.*

December 4. King's Bench Division. Before Mr. Justice Coleridge and a special Jury.

This was an action by Mr. Wm. J. King, a builder and contractor, carrying on business at Golder's Green, against defendant Mr. Wm. Samuel Crosher, to recover damages in respect of an alleged slander. Defendant denied that he spoke the words complained of and denied the meaning alleged or that they bore any defamatory meaning.

Mr. Gordon Hewitt, K.C., and Mr. Hugh Fraser appeared for the plaintiff and Mr. McCardie for the defendant.

It was stated on behalf of the plaintiff

that the defendant was a quantity surveyor. On April 7th of this year, during an election of candidates to the Hendon Urban District Council, the defendant, it was alleged, was standing outside the tube station at Golder's Green in the evening, and as voters arrived there from the City on their way home, he was alleged to have said to them, "Don't vote for King, the jerry builder," "Don't vote for a jerry builder," and "Don't get into his cars. Go into ours." Defendant was not a candidate at the election, but a supporter of the candidates opposing the plaintiff. The result of the election was that these candidates were elected, and the plaintiff failed in his election by two votes. There had been an offer of an apology to the plaintiff and other means to settle the matter, but these had failed.

The jury returned a verdict for the plaintiff, and they assessed the damages at £10.

Judgment accordingly, with costs.

Builder and Manchester Corporation Building By-laws.

Halsall v. Manchester Corporation.

December 2. King's Bench Division. Before Justices Bray and Lush.

Mr. Rayner Goddard applied ex parte on behalf of Mr. Thomas Henry Halsall, a builder, of Smedley Lane, Cheetham, Manchester, for a rule nisi for mandamus directed to the Lord Mayor and Corporation of Manchester calling upon them to consider and determine certain plans for the laying out of new streets.

Counsel said that plans were submitted to the Corporation with reference to the laying out of certain new streets within the city. Early in the year Mr. Halsall submitted plans which were approved by the Corporation. They related to three new streets, and afterwards it was found to be impracticable, from a financial point of view, and otherwise inconvenient, to excavate to the gradient shown on the plans. Other plans, showing the streets to be cul-de-sac, were accordingly submitted in August, and with the same level at the opening of the estate, and these were rejected by the Corporation on the ground that they were not satisfactory under By-law 3. That by-law stated:—

"Every person who shall lay out a new street shall lay out such street free from any erection thereon and at such level as will afford the easiest practical gradient throughout its entire length for the purpose of securing easy and convenient means of communication with any other street or intended street with which such new street may be connected, or may be intended to be connected, and as will allow of compliance with the provisions of any public or any local statute or by-law in force within the city for the regulation of new streets and buildings."

In these circumstances, added counsel, the Corporation thought that the builder must have regard to a street or streets which might at some time be laid out or intended to be laid out at the end of the cul-de-sac, but that could not apply because there could be no other street or intended streets with which these cul-de-sac could be connected.

Their lordships granted the rule.

Alterations at Bakeries.

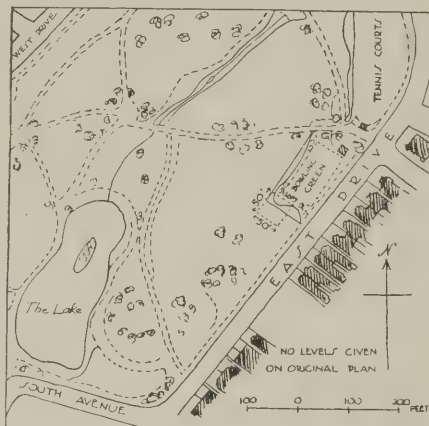
Extensive alterations are being carried out at the Express Dairy Company's bakeries at Drayton Park, Messrs. Young and Hall being the architects, and Messrs. E. A. Roome and Co., of Hackney, the contractors.

COMPETITIONS.

Clock Tower, Queen's Park, Brighton.

Designs are invited for the erection of a clock tower in Queen's Park, Brighton, to cost £1,000. Premiums of £25 and £10 for first and second designs will be awarded. The author of designs placed first will be asked to carry out the work if his designs, on being submitted to tender, shall prove to be within 5 per cent. of his estimate. Architects' commission to be 5 per cent., the premiums to merge.

The available site for the tower is indicated on the accompanying sketch plan, being an area 50 ft. by 50 ft. The suggested minimum height is 40 ft. £200 of



the £1,000 will be set aside for the clock, which will have four illuminated dials, each 5 ft. in diameter. Cost of tower to be limited to £700, leaving a sum of £100 for contingencies, which latter sum is to include the architect's commission. An estimate of the total cost of the tower, inclusive of foundations, must be provided. Plans, sections, and elevations to be drawn to a scale of 4 ft. to the inch. Drawings required: (1) Block plan of the park, with the design correctly laid out thereon in a distinctive colour. (2) Plan of the tower at the following levels: (a) Ground level; (b) clock level; (c) roof level. (3) Section of tower showing means of access to the clock; (4) elevations. A short, typewritten report to accompany the drawings.

All questions relating to the competition to be addressed to the Town Clerk, Town Hall, Brighton. They must reach him not later than December 13th. Designs must be sent in not later than 10 a.m. on Saturday, January 31st, 1914.

St. Paul's Bridge.

The Bridge House Estates Committee of the Corporation of the City of London invite designs from British architects for the architectural treatment of the new St. Paul's Bridge. Conditions of the competition and instructions to competing architects may be obtained upon application to the Town Clerk, Guildhall, London, E.C., upon deposit of £3 3s., which will be returned to all persons who submit a design in accordance with the conditions. A premium of £300 is offered for the design which may be placed first, and further premiums of £200 and £100 respectively for those which are placed second and third. In the selection of the designs the committee will be advised by Sir William Emerson, P.P.R.I.B.A., as assessor. Sealed designs, endorsed "Architectural Design, St. Paul's Bridge," must be addressed to the Town Clerk, and delivered at the Hallkeeper's Office, Guildhall, London, E.C., on May 4th, 1914.

PROJECTED NEW WORKS.

Sewerage Scheme, Wotton-under-Edge.

The Parish Council have decided to apply for the loan of £10,500 for the purpose of a new sewerage undertaking.

School, Ferryhill, Aberdeen.

Aberdeen School Board have approved plans for the erection of an extension to Ferryhill School at a cost of £9,750.

Bridge, Cardiff.

The Cardiff City Engineer has presented plans for the erection of a bridge over the outwash in Roath Park at a cost of £850.

University Buildings, Liverpool.

Schemes are being formulated for the erection of a new tropical school and a new laboratory for the bacteriological section at Liverpool University.

Baptist Church, Twickenham.

A new Baptist church at Twickenham Green, to take the place of the present building, is to be erected at a cost of £4,000.

Bridge, Worcester.

Worcester City Council are considering the advisability of erecting a second bridge over the River Severn at Worcester.

Houses, Clipstone, Notts.

It is proposed to erect 700 houses at Forest Town for the workmen employed at a new colliery recently started by the Bolsover Colliery Co. at Clipstone.

School, Manchester.

The Finance Committee of the Corporation are considering a proposal for the expenditure of £17,856 for the provision of a new school to be erected in Crowcroft Park, Levenshulme.

Town Planning, Lanark.

The Middle Ward district of the county of Lanark have decided to apply to the L.G.B. for authority to prepare a town-planning scheme for the Hamilton Road, near Motherwell.

Theatre, Gower Street.

From the designs of Messrs. Swan and Norman, a new theatre for the Academy of Dramatic Art is to be built on a site between Malet Street and Gower Street, W.C.

Cottages, Beaconsfield.

On a convenient site at Beaconsfield, presented by Lord Burnham, the Urban District Council have resolved to erect thirty-four cottages for the working classes.

Christ's Hospital Offices.

The offices of Christ's Hospital in Aldersgate Street are to be transferred to a new building to be erected at the corner of Great Tower Street and Water Lane from designs by Sir Arthur Blomfield and Sons.

Council House Extension, Birmingham.

The General Purposes Committee of the Birmingham City Council have recommended that the Finance Committee be instructed to borrow £66,000 for the further extension of the Council House.

Town Planning Schemes, Glasgow.

Glasgow Corporation have given notice that they intend to make application to the Local Government Board for Scotland for authority to prepare town planning schemes at Kennyhill and Niddrie, and in the districts of Kelvinside, Temple, Jor-

danhill, Broomhill, Whiteinch, Scotstoun, Yoker (East), Drumchapel, Scotstounhill, and Knightswood.

Baths, Falkirk.

Plans of new municipal baths have been passed by the Falkirk Dean of Guild Court.

Alterations, Colney Hatch.

Improved accommodation for the nursing staff at Colney Hatch Mental Hospital is to be provided at a cost of £2,750.

Tuberculosis Pavilion, Chester.

The City Corporation have decided to erect a tuberculosis pavilion adjoining the isolation hospital at Chester.

Cottages, Wrexham.

Wrexham Town Council have been directed by the L.G.B. to build thirty cottages to let at low rentals.

Church Extension, Parkstone, Dorset.

Plans have been approved for the extension of St. Osmund's Church and of St. Osmund's Hall, Parkstone.

Hydropathic, Gleneagles.

A new hydropathic is to be erected at Gleneagles, near Crieff, at a cost of £40,000. Mr. James Miller is the architect.

Dwellings, Newcastle.

Newcastle Housing Committee have approved the erection of a large block of workmen's dwellings on some vacant ground in City Road.

Municipal Buildings, Dublin.

New municipal buildings are to be erected at Dublin, from the designs of Messrs. McDonald and Read, at an estimated cost of £55,000.

Picture Palace, Glasgow.

It is proposed to erect, from the designs of Mr. Richard Henderson, a new picture house in Gowlay Street, Springburn, Glasgow.

Concert Hall, Brighton.

Brighton Town Council have approved a scheme for the construction, at an estimated cost of £75,000, of a concert hall on part of the Aquarium property.

Sanatorium, Forfar.

Plans have been submitted to the Forfarshire Public Health Committee for the conversion to the purpose of a consumptive sanatorium of Noranside Mansion, and for the erection of wards.

County Offices, Essex.

After considering a report by Sir Aston Webb, R.A., Essex Standing Joint Committee have adopted plans for the new county offices at Chelmsford. The estimated cost is stated to be £46,000.

Baths, Glasgow.

Plans by Mr. A. B. McDonald, City Architect, have been passed by the Glasgow Dean of Guild for the erection of baths and washing-houses in Nelson Street, for the Kingston district.

Church, Edinburgh.

A new church is to be erected at McDonald Road, Edinburgh, for the Wesleyan Pentecostal Church, per Rev. James Jack, the plans having been passed by the Dean of Guild Court.

Cottages, Rosyth.

Plans are being prepared for seventy workmen's cottages, to be erected by a garden city syndicate at Rosyth, near Edinburgh. Mr. James Miller is the architect.

Hospital Extension, Bridlington.

The L.G.B. have held an inquiry into an application of the Town Council for

permission to borrow £1,500 for the extension of the isolation hospital in accordance with plans prepared by Mr. E. R. Matthews, the Borough Surveyor.

Cold Store, Glasgow.

Plans have been prepared for the erection of cold stores in Armour Street, Sydney Street, and Hill Street, Glasgow, for the Union Cold Storage Co., Ltd. The architects are Messrs. J. W. and J. Laird, Glasgow.

London.

The L.C.C. have consented to the erection of the following works:—

Hampstead.—Buildings on the north-eastern side of Haverstock Hill, Hampstead, on the application of Messrs. Worley and Turner, on behalf of Mr. J. Russell.

Kennington.—A one-storey shop at Vauxhall Station, Vauxhall Cross, Lambeth, on the application of Messrs. J. A. J. Woodward and Sons.

Paddington.—An iron and glass shelter in front of the entrance to Praed Street (Metropolitan Railway) Station, Paddington, on the application of Mr. W. Willox, on behalf of the Metropolitan Railway Company.

St. George, Hanover Square.—Refacing of the front of 42, Upper Grosvenor Street, Grosvenor Square, and the erection of a projecting porch, on the application of Mr. G. A. Codd, on behalf of Mr. Schilizzi.

Haggerston.—A building upon a site abutting upon Goldsmith's Row and Hav Street, Shoreditch, on the application of Mr. F. E. Harris.

Paddington.—A motor house at the rear of 33, Bark Place, Paddington, on the application of Messrs. G. Elkington and Son, on behalf of Mr. C. Marshall.

City.—A temporary steel and iron hoarding at 11 and 12, Moorfields, City, on the application of Mr. Delissa Joseph, on behalf of Sir Adolph Tuck, Bart.

St. George, Hanover Square.—An open stone balustrade in lieu of a solid parapet to the party wall of a covered passageway at 16, Bruton Street, W., on the application of Sir Ernest George and Mr. A. B. Yeates, on behalf of Mr. J. F. Mason.

COMING EVENTS.

Wednesday, December 10.

Northern Architectural Association.—Mr. W. H. Ward on "French Architecture in the Nineteenth Century," at 7.30 p.m.
Manchester Society of Architects.—Mr. Theodore Fyfe on "Some Aspects of Greek Architecture."

Thursday, December 11.

Society of Architects.—Mr. R. Goulbourn Lovell on "Courage in Colour," at 8 p.m.
Concrete Institute.—Mr. Laurence Gadd on "Some Fallacies in Testing Cement," at 7.30 p.m.
Victoria and Albert Museum.—Mr. G. H. Palmer on "Early Printed Books," at 8.30 p.m.
Leeds and Yorkshire Architectural Society.—Mr. T. Edgar Eccles on "A Holiday in the Val d'Aosta," at 6.30 p.m.

Friday, December 12.

Royal Technical College, Glasgow: Camera and Sketching Club.—Mr. A. G. Watson on "Pictorial Composition," at 8.15 p.m.
Northern Polytechnic Institute.—Mr. Ivor Beaumont on "The Architectural Treatment of Colour in Buildings," at 8 p.m.
Manchester University.—Mr. Beresford Pite on "English Mediaeval Architecture" (last lecture), at 7 p.m.
Edinburgh Architectural Association.—Associate Members' Evening (subject of debate not announced), at 8 p.m.

Monday, December 15.

Surveyors' Institution.—Professor Ainsworth Davies on "Modern Science and Modern Agriculture," at 8 p.m.
Royal Institute of British Architects.—Mr. W. A. Forsyth on "The Repair of Ancient Buildings," at 8 p.m.
Royal Society of Arts.—Mr. E. G. Coker on "The Measurement of Stresses in Materials" (third lecture), at 8 p.m.

ST. BARTHOLOMEW-THE-GREAT, WEST SMITHFIELD.

The excavation of the remains of the walls of the south external chapel of St. Bartholomew-the-Great, West Smithfield built by Rahere, A.D. 1123, is now complete. It confirms the opinion expressed some eighteen months ago that the plan of the chapel was similar to that of the external chapels at Norwich—that is to say, instead of having a straight wall on the east side with an apse on the south side, as shown on all the published plans of St. Bartholomew's, it has an apse on the east side as well as on the south. The external face of the walls is in a far better state of preservation than the interior face; the "set off," forming a plinth, remains perfect around the whole extent of the chapel, with the exception of a small gap which occurs at the junction of the two apses another in the east wall, where a passage had been made to bring coals to the furnace lately within the chapel. The exterior cannot be seen by visitors at present, as the work is still going on, but a view of the interior is obtained from the church through the door in the south aisle. The church is open every week-day from 9.30 till 5 o'clock.

THE R.I.B.A. AND REGISTRATION

At a special general meeting of the R.I.B.A., held on Monday, December 9, the President, having briefly traced the history of the movement for the Statutory Registration of Architects, formally presented for consideration the report and recommendations of the Council in regard to the question.

Mr. C. Stanley Peach (F.) moved, and Mr. K. Gammell (A.) seconded, the adoption of the report and recommendations.

Mr. S. Douglas Topley (A.) moved, and Mr. Herbert A. Welch seconded, the following amendment:—

"That in the opinion of this meeting the R.I.B.A. it is undesirable to come to any decision in regard to the report and recommendations of the Council without further information; and, in order to arrive at some definite policy in regard to future action, a further meeting should be called before the end of January next for the purposes suggested by the Registration Committee in Clause 5 of the report of the 28th March, 1912, and that with notice of that meeting every member should receive from the offices of the Institute:—

- (a) A copy of the Bill as revised.
- (b) Copies of the reports of the Solicitors and Parliamentary Agents and
- (c) Copies of the whole of the documentary evidence upon which these reports were based.

In the discussion which ensued the following members took part, viz.: Messrs. Edwin T. Hall (F.), Sir Aston Webb, R.A. (F.), G. A. T. Middleton (A.), John Slater (F.), W. H. Seth-Smith (F.), Leonard Stokes (F.), James S. Gibbs (F.), John Brooke (F.), and C. H. Brooke (F.).

A motion for the adjournment of the meeting having been made by Sir Aston Webb, and the President having undertaken that members should be furnished with all the information desired, the motion was put to the meeting and carried.

We hope to make fuller reference to the debate in our next issue.

THE ARCHITECTS' & BUILDERS' JOURNAL.

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(From Piranesi.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

DECEMBER 17 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 38 No. 988

The Crisis at the Institute.

A SPECIAL general meeting of the Royal Institute of British Architects was held on the first day of this month to discuss the "report and recommendations of the Council in regard to the statutory registration of architects."

As the President, Professor Blomfield, observed, the question of registration "has hung over the Institute and divided its counsels for something like twenty-five years." The most anxious consideration has been devoted to the subject during that time, but without any acceptable solution being evolved. The year 1887 saw the first official attempt to grapple with the difficulty. In 1888, 1889, 1891, 1893, 1895, and 1900 Registration Bills were brought forward, only to be abandoned on the score of their being inadequate, unsatisfactory, and impracticable. Five years later, in 1905, a new Bill was prepared by the Council of the Institute. It, however, also contained provisions unacceptable in many quarters, and in consequence shared the fate of its predecessors. But under the presidency of the late Mr. John Belcher many eminent members of the profession, who had hitherto remained outside the Institute, largely because of its registration policy, were persuaded to join that body on the understanding that the whole question of architectural education should be tackled afresh by the Institute before registration was again brought forward.

This compromise was effected in 1907. From that time onwards the Council have sought to fulfil the conditions of the agreement, and the reforms introduced into the Institute's system of education are more than sufficient evidence of that fact.

In 1909 a charter was obtained whereby a new class—that of Licentiates—was created. It was expressly stated in the charter that "a Licentiate shall not be a corporate member of the Royal Institute." A year later, with a view to still further placating outside interests and so reducing the amount of opposition to be anticipated in Parliament, proposals were made for the inclusion in the Institute, of the members of the Society of Architects. These proposals when laid before the general body were referred back to the Council for further consideration. The Council at once appointed two committees—one to consider the best method of proceeding with registration, the other to examine the constitutional aspect of the question. All the allied societies were at the same time requested to express their opinions on the matter. The outcome is the present "report and recommendations of the Council."

Stated briefly, the position is as follows:—The expert legal advisers of the Institute are of the opinion that, taking all the various circumstances into consideration—the congestion of Parliamentary business, the probability of opposition, etc.—the prospects of a Registration Bill being passed are, for a considerable number of years, very slight, whilst the actual expenses involved in the process are in themselves deterrent. Then amongst the allied societies there is a serious division of opinion, some considering it inadvisable to

attempt to proceed further with any Bill. Finally there is a constitutional difficulty. It is clear that a Registration Bill must affect all who are connected with the Institute. Yet one entire section of the members—the Licentiates—are by the constitution excluded from voting upon the subject.

In view of all these difficulties, the Council have arrived at the conclusion that for the present the Parliamentary avenue to Registration is blocked. They have, however, conceived what appears to be a happy and almost brilliant solution. By the much simpler process of petitioning the Privy Council for a new charter they propose to secure most of the privileges that would accrue to the profession under the Act. Through the new charter duly qualified architects would acquire the title of "Chartered Architects," so that, by analogy with the profession of Accountancy, they would thereby obtain a definite status in the public eye, which they do not at present possess. Further, this scheme, far from clashing with the original Registration proposals, would form a natural preliminary to them.

Frankly, we welcome the Council's decision. It is in our opinion, the only feasible way in which to deal with the problem at present; and, whilst it is only a partial solution, it is, we believe, a fortunate one as far as it goes.

Viewed from the professional standpoint, the need for organisation is urgent. Trained architects can, as a whole, never command the authority and respect to which they are entitled until their status is adequately ensured by statute, until their professional level is equal to that of lawyers and doctors. As that corroboration is still far distant, we must be grateful for any scheme which promises to give us certain immediate advantages and which will ultimately assist us to secure full rights.

Involved, nevertheless, in the proposals presented in the Council's report and recommendations is a very serious issue for present Fellows and Associates, who constitute the only corporate members of the Institute. It is suggested that Licentiates be practically made full members of the Institute, with voting powers, and that the new title "Chartered Architects" be conferred on them as on Fellows and Associates.

The seriousness of the proposition is evident when it is realised that the title will in the natural order of things swallow up all subsidiary qualifications. The public, once they have accepted the title "Chartered Architect," will not stop to realise the distinction between Fellow, Associate, and Licentiate. Indeed, implied in the scheme is the hope that the only difference they will realise will be between "Chartered" and "Unchartered" Architects. If this were not so there would be no motive in endeavouring to create a distinction.

In view of the conditions under which the great Licentiate class was formed three years ago, a class which numerically is almost equal to that of the Fellows and Associates combined, it is incumbent on the latter members very seriously to consider whether

either the public or the Institute would be well served by admitting the Licentiate body to the privileges proposed.

Though there is no doubt that many eminent architects are at present Licentiates, it is also true—in the Provinces especially—that when the class was first created to facilitate registration, many persons, calling themselves architects, found a too ready admittance to it, the merest apology for an inquiry into their qualifications being made.

But now that the new scheme defers the Bill for many years to come, there does not seem to be the same justification for repeating so indiscriminating a policy. Indeed, the Privy Council may well inquire what is the particular virtue of the title "Chartered Architect" if it is to be applied to persons of doubtful and even insufficient qualification.

The right policy seems to us to be for the Institute to make the transition from the Licentiate class to full membership open and easy to all who can by a submission of actual work and by a demonstration of personal ability justify their fitness for the promotion.

Full membership is open to a Licentiate of established practice by becoming a Fellow. For a younger man the Associate examinations present the right method.

We have no doubt that the new title would act as an inducement to all the best members of the Licentiate class to take one of these courses. It is not, in our opinion, fair either to the public or the Institute that the residue should be entitled to the privileges it is hoped will be attached to the title "Chartered Architects."

C. H. R.

New Offices for the Metropolitan Water Board.

AT its meeting on Friday last, the Metropolitan Water Board decided to appropriate the land belonging to it in Rosebery Avenue as a site for its central offices. Further it was decided that six architects should be invited to prepare designs for the new buildings, which are not to cost more than £80,000, and are, if it is "reasonably possible and practicable," to incorporate the Oak Room and the adjoining room at present in the offices of the New River Company in the Avenue. Included in the site, which has an area of about seven acres and a quarter, are the Round Pond and three filter beds, and the pond is to be obliterated at a cost not exceeding £1,000. A professional assessor will be appointed to advise on the conditions of the competition and on the designs for the buildings. For the moment, our only comment is that, for a public building of such importance, an open competition would have been preferable, as giving an enormously extended choice, and as tending possibly to the discovery and certainly to the development of architectural talent that may remain latent and sterile for lack of such opportunities as this ought to afford.

Highway Dedication.

A POINT in highway dedication that has been determined in the House of Lords may be usefully chronicled. In this case, the appellant, Mr. Rowley, had laid out at Tottenham a street, known as Keston Road, which he caused to be metalled for one-half of its width, on the side on which he had caused houses to be built. The half next to the respondents' (Tottenham Urban District Council's) property was left unmetalled. For about three years this road (mainly, of course, the metalled portion of it) had been uninterruptedly used by the public; but when the Council, who were building a school on the side of the road opposite to appellant's houses, opened a gate in their boundary fence and began carting building materials across the unmetalled portion of the road, appellant objected, and blocked up the opening made in respondents' fence. An injunction was then sought and obtained by the

Council, Mr. Justice Joyce holding that the uninterrupted user of the road by the public was sufficient to justify the inference of an intention to dedicate the road throughout its whole width, and that the Council were entitled to a reasonable extent to cross on foot or with vehicles the portion of the road appropriated for a footpath. This decision, which was upheld by the Court of Appeal, was confirmed last week by the House of Lords.

The "Storey" Dilemma.

A FEW weeks ago we mentioned a difficulty in which Horsham District Council had found itself with regard to interpretation of the word "storey": the question being whether a house having a ground floor and an upper storey was a house of two storeys. We pointed out that the professional view is generally at variance with the dictionary definition. In this country, architects and builders, in reckoning storeys, usually discount the ground floor, the building immediately above it being reckoned as the first storey. We did not, and do not, necessarily defend this view: we simply stated its prevalence, and we were careful to mention at the same time that it is at variance with the definition in the dictionaries, which regard every floor as a storey. At a recent meeting of the Council, the chairman announced that in interpreting the local by-laws the dictionary definition would be applied. In the circumstances, that is a very convenient course to adopt, since the dictionary definition coincides with the obvious intention of the by-laws; and, moreover, a dictionary definition always carries considerable weight in a court of law, where *lex scripta* is an object of fetish-worship. In the present instance, all the dictionaries happen to be wrong, as they usually are when the mere lexicographer confidently interprets a technical term by the light of nature; although few of the fraternity would confess to the "ignorance, pure ignorance," to which Dr. Johnson, the father of such as compile dictionaries, frankly pleaded guilty.

Crockeryware Columns.

PROPOSED alterations at the Victoria and Albert Museum have evoked the customary sentimental protest. Some five-and-forty years ago, James Gamble devised for the ceramics gallery of the old museum a double row of about a dozen columns in English Della Robbia ware. For these it is proposed to substitute plain columns, treated in accordance with the scheme of decoration of the gallery. This change, it is said, is favoured by Mr. Reginald Blomfield, Professor Selwyn Image, and Professor Moira, but a memorial against it, "signed by about 120 of the leading artists, architects, and amateurs of the country," is said to include the names of Sir T. Graham Jackson, Sir George Frampton, Sir Thomas Brock, Mr. John Sargent, Sir William Richmond, Sir Hubert Herkomer, and Sir Aston Webb. Some of the columns have been removed already, and it is hardly likely that they will be restored, although one emotional objector expresses the hope that "even at this stage the hand of the destroyer may be arrested, and that this gallery, which represents the harmonious co-operation of various men of between forty and fifty years ago, may be preserved for the instruction and delight of future generations." In our view the instruction would be vicious and the delight unholy. Those old crockeryware columns are so many memorials of the unequalled depths of inanity to which "art" had descended at the period at which they were perpetrated. They should not all be utterly destroyed. Some of them should be exhibited in the Ceramics Gallery, or in a Gallery of Misapplied Arts, as shocking examples of Early Victorian ineptitude. That fine old crusted phrase, "the hand of the destroyer," is not essentially opprobrious.

HERE AND THERE.

ARCHITECTS who live in cities, especially those who live in London, often find the same thoughts passing through their mind as this or that building comes into view on their journey to and from the office. I find myself in that position in regard to several parts of the metropolis, and a constant study of the buildings I pass has revealed what a composite of architecture can be presented in even a very short circuit. Take, for instance, the brief route across St. James's Park from the Duke of York's steps to Storey's Gate.

As we stand beside Benjamin Wyatt's granite column, on the summit of which is perched the second son of George III., ingloriously crowned with a lightning conductor, we can survey the work of a dozen periods. Northwards the County Fire Office terminates the view, serving, with the surviving fragments of Waterloo Place in the foreground, to remind us of that ordered architectural scheme which Nash brought right down to Carlton House. The rebuildings of the nineteenth century have played sad havoc with this scheme. Originally Piccadilly Circus must have been attractive enough before the shopkeepers came along and cut up the ground-floor storey, and the London Pavilion was put into the space regardless of any such thing as symmetry in street planning. So that to-day the County Fire Office looks down upon a jumble.

The Raleigh Club, in the lower part of Regent Street, is a striking remnant of departed glory, and the colonnade this side of it remains to testify to Nash's considerable talent, but practically all the rest is gone, including Repton's chapel on the west side.

In the immediate foreground is the equestrian statue of Lord Napier of Magdala, which we could well do without in this place, for it competes in a most unfortunate way with the Crimea Memorial on the other side of Pall Mall. This latter, to my mind, is the finest memorial we have in the London streets, after Le Soeur's Charles I. at Charing Cross.

The glimpse of Pall Mall, with the buildings to right and left, brings prominently to mind the fact that we are here on the edge of clubland. From our vantage-point we can compare the Athenian grace of Decimus Burton's work at the Athenæum with Barry's Italian at the Travellers' and the Reform.

The width of the Duke of York's steps is nearly twenty yards, and when we stand clear of the bottom pavement and gaze up at the scheme, with the monument rising majestically in the centre and the noble blocks of Carlton House Terrace on either side, we may agree with the opinion expressed by the late Mr. McKim, when he came over to receive the Royal Gold Medal, that London can offer nothing finer than this in the way of monumental effect in civic planning. It is, indeed, a very striking piece of architectural scenery. One detail about the façades of Carlton House Terrace which has always caught my attention is the incongruous look of the Corinthian capitals enshrouded as they are by wire netting. No doubt the pigeons and other birds make the acanthus look very unseemly, but this alternative of a wire cage around the capitals produces an effect which is far more disturbing and unsightly. It is a method followed, I know, in scores of other places elsewhere in London, but I have never yet been able to tolerate it.

Looking southwards from the Duke of York's steps, we find Sir Aston Webb's handiwork to right of us, to the left of us, and in front of us, in the form respectively of the façade of Buckingham Palace and the Queen Victoria Memorial, the Admiralty building opening into Charing Cross, and the Royal Artillery Memorial, with its bronze group and frieze by Mr. Colton. Neither this last memorial nor the one close at hand erected to the memory of the Royal Marines can be regarded as a very happy achievement. A far

better piece of work is to be discovered a short distance away, where, on the quiet grass plot next to the Admiralty building by Messrs. Leeming and Leeming there now stands the bronze statue of James II. by Grinling Gibbons, oft removed, but perennially of interest as a fine piece of craftsmanship.

We may pass the Admiralty block next the parade ground with the remark that if the drawings of it were as wonderful as we have always been led to believe they were, then there has been a great falling off in the translation from paper to brick and stone. Kent's Horse Guards is a far more delightful focus of interest. This composition is a charming one, and the beautiful white tone which a century of exposure has given to the Portland stone makes the group bright and attractive under all conditions of weather. It is eminently a case where the artist with an eye for architecture can find a happy subject for his pencil or brush, just as numerous members of the clan seem to delight in getting within the iron railings of St. James's Park to paint, amidst pelicans and peacocks, the little red-tiled garden pavilion set about with greenery and a quiet stretch of water.

Next to the Horse Guards we may note Kent's Treasury building, and adjoining that the beautiful little Scottish Office. Then comes Downing Street preceded by the Premier's house—a pleasing design of Georgian character carried out in dull coloured bricks. Sir Gilbert Scott's Foreign Office is the next commanding feature—a block, in fact, huge enough to dominate the whole park. We all know how much it went against the grain when Scott was obliged to give a Renaissance instead of a Gothic interpretation to his scheme, and how, in the end, he set to work with expensive books on Italian architecture to meet the insistent demand of Lord Palmerston. Bearing all this in mind, and considering the time at which this building was carried out, will be admitted that Scott achieved a very fair result, though I for one cannot feel in any way exhilarated by it. It is worth while noting how, despite the fact that a Renaissance building, a whole Renaissance building, and nothing but a Renaissance building, was demanded, the Goth will show himself in places, particularly in the encaustic tile string-course at second floor level. It is interesting, too, to note how the sculpture has been added with a very Gothic feeling for freedom from anything too formal. I have no doubt the leading statesmen of the period are all in their niches on the building—Gladstone I plainly see—and there are groups of figures symbolical of I know not what; but the whole treatment is devoid of any degree of fascination, and rain and soot have collaborated so unfortunately as to wear away a nose here and to add a black eye there. Gothic and Renaissance are blended also in some of the carved ornament. And here one may stop to mention a human failing. If it is Duc who takes liberties with accepted forms, then the eulogist who wishes to be considered well in the view of his contemporaries is in haste to point out to us how only a master would dare to handle the details in such an unorthodox way. But when it is a Victorian Goth who attempts any such thing, his work becomes once an unmeaning jumble of forms! Criticism is very rarely given on the intrinsic merits of anything, it would be plainly evident if the Academy catalogue had no names against the pictures. With this reflection we may terminate this short journey, as Scott's work brings us to the completion of Brydon's scheme for the new offices of the Local Government Board, now just rising above ground; moreover, we are at Storey's Gate, cheek by jowl with architecture which out-pokes the pokers of Norman Shaw and out-gables the gables of Chelsea-cum-Haarlem.

UBIQUE.

THE PLATES.

The University of the Cape of Good Hope, Cape Town.

WE publish as plates in this issue two views of the hall and the ambulatory in the University of the Cape of Good Hope at Cape Town, which portion was opened by Lord Gladstone in the early part of the present year, the foundation-stone having been laid by the Duke of Connaught in 1909. Delays took place owing to lack of funds, and the large central hall which forms the great feature of the building was not begun until, through the generosity of the executors of the late Sir Donald Currie, sufficient money was forthcoming to enable the University Council to complete the undertaking, which had been commenced in 1905. The total cost has amounted to about £100,000. Messrs. W. Hawke, F.R.I.B.A., and W. N. McKinlay are the architects. The exterior of the building is in "Flatpan" stone, the carvings to which were executed by Messrs. H. H. Martyn and Co., of Cheltenham. The dome is covered with copper, and the minor roofs are tiled with glazed Spanish tiles. The ceiling to the dome is decorated in modelled plaster, the main hall being panelled in oak. For the floors of the corridors and the entrance halls black and white marble has been used, the remaining floors being covered with hardwood. The columns in the internal corridors are of Corsehille stone. The ground floor of the building, besides including the examination hall, is devoted to administration offices, as will be seen from the accompanying plan. The Registrar's offices are on the main floor level, as also are the library, committee rooms, and council chamber. It is intended, when funds permit, to place a large organ in the back of the



UNIVERSITY OF THE CAPE OF GOOD HOPE, CAPE TOWN.
W. HAWKE, F.R.I.B.A., AND W. N. MCKINLAY, ARCHITECTS.

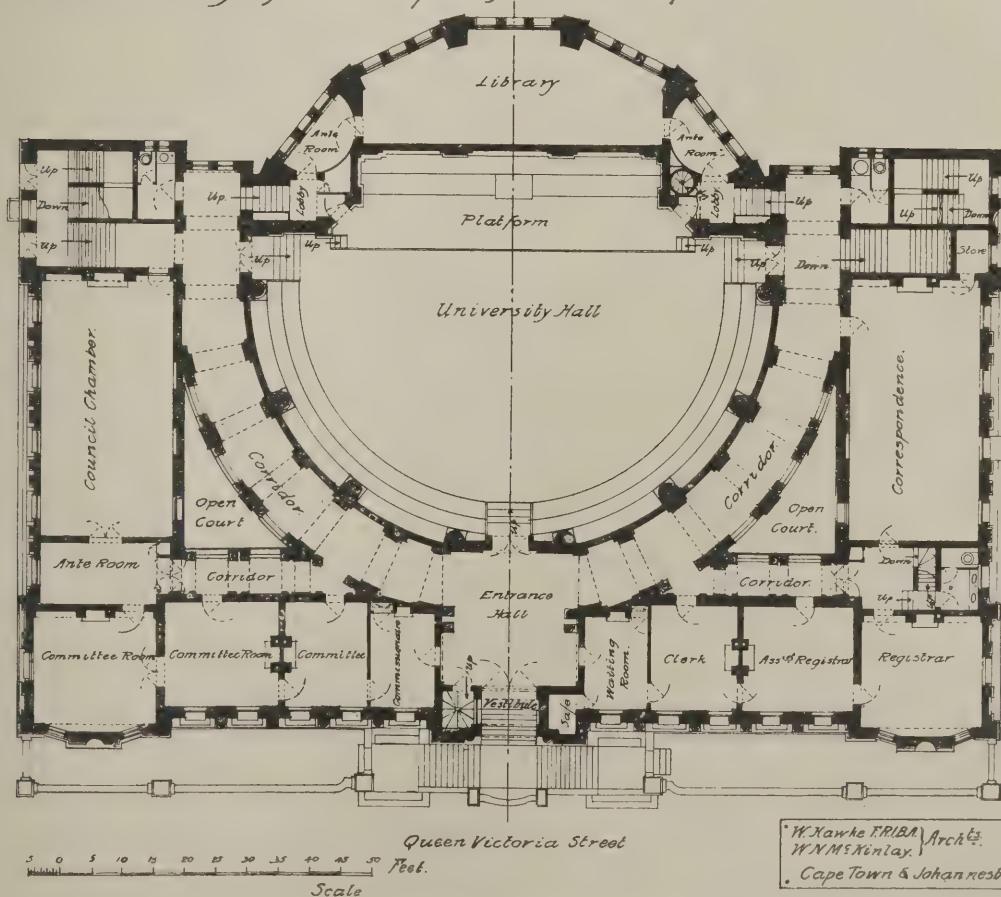
main hall, in the central space in the rear wall of the proscenium.

Apartment Building, Avenue Victor Hugo, Paris.

This building was awarded the premium some years ago in the *concours* which are regularly held for street façades in Paris. It is a rather florid design, but very characteristic of modern French work.

Designs for Workmen's Dwellings.

The premiated designs for workmen's dwellings, in

University of the Cape of Good Hope

the Bradford Housing competition, are all dealt with in the article that appears on page 535 of this issue.

Temple of Jupiter Capitolinus, Rome.

Cockerell was a master of architectural draughtsmanship, especially in relation to restorations of great buildings of antiquity. The example of the Temple of Jupiter Capitolinus, Rome, which we publish this week, is an admirable illustration of his rare skill and knowledge. The original temple was founded by Tarquinius I. and completed by his son Tarquinius Superbus about 509 B.C. It was built on an enormous platform, and consisted of three cella, side by side, with a tetrastyle portico in front. This temple lasted till 83 B.C., when it was burnt, and in the following year it was rebuilt by Sulla and Q. Lutatius Catullus. This second temple is the one referred to by Vitruvius (Book III., Chapter 3) as aræostyle or wide-spaced, in which "the architraves are of wood and their pediments are usually ornamented with statues of clay or brass, gilt in the Tuscan fashion." This temple, again, and its successor were burnt in A.D. 70 and A.D. 80, and rebuilt by Vespasian and Titus respectively. The building represented in Professor Cockerell's drawing, therefore, is the fourth and last temple. It was of the Corinthian Order, and was built by Domitian (A.D. 81-96), with increased dimensions and magnificence; the portico also was widened and extended round the sides of the cellar, so that it was hexastyle with six columns in front. The columns were of Pentelic marble brought from Athens, and it is said that one of the drums was found in 1875, measuring nearly 7 ft. in diameter. The roof was covered with gilt bronze tiles, and the three doorways were coated with plates of gold. The sculpture of the pediment is shown on a relief in the museum of the Palazzo dei Conservatori, as also the quadriga on the top, which was probably an enlarged copy of the original terra-cotta example of the first temple. It will be noticed that the columns in Professor Cockerell's drawing are very attenuated, and have the appearance of being twelve diameters high. According to Plutarch, they were of correct proportions when they left Athens, but were afterwards re-cut and polished in Rome. As shown, the temple was built in a sacred enclosure in which were smaller shrines and other monuments, and was entered through a propyleum with a tetrastyle portico, preceded by a lofty flight of steps.

Working Drawing of Quasi-South Transept, Liverpool Cathedral.

The drawing of the end elevation of the quasi-south transept of Liverpool Cathedral should be studied in conjunction with the plate published in our issue for November 25th last, which showed a cross-section of the same subject, and the particulars then given should be read in relation to the present illustration.

CORRESPONDENCE.

The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents, who are asked to be brief, and to write on one side only of the paper.

The Statutory Registration of Architects.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—For nearly thirty years the Society of Architects have promulgated and pioneered a movement for the statutory registration of architects, and have from time to time promoted a Bill in Parliament, on lines which provide for the protection of all present vested interests, for the attainment of that object.

For the past two years or so the Society have temporarily suspended their activities in this direction for reasons which, I think, have been generally appreciated, but in view of recent developments they have decided to take immediate further action.

The Society's draft Registration Bill, which has been in the meantime revised and brought up to date has been placed in the hands of eminent counsel for completion, and all arrangements have been made for again introducing the Bill into Parliament at the first opportunity.

The Society invite the support of all architects who favour the principle of statutory registration.

G. E. BOND,

Chairman of the Registration Committee of the Society of Architects.

London, W.C.

[While the courage and persistency of the Society of Architects are *per se* quite admirable, we cannot resist the conviction that these fine qualities are to a great extent wanted, in so far as, in view of the present attitude of the R.I.B.A., they merely accentuate a fatal division of forces.—EDS. A. AND B.J.]

"Modern" Architecture.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—The correspondent who, in a recent issue signs himself "Progress" has raised a variety of issues. Commenting upon a recent leading article on "Modern Architecture," he says: "Surely there is plenty of intellect displayed in the constructional marvels of Gothic architecture, while the proportion and beauty of this style cannot be excelled. It may be well-nigh extinct, but that surely is not because it is merely (as alleged) displays devotion. More likely it is because people have changed in their way of thinking, and it no longer appeals to them."

It may be admitted that intellect is shown in Gothic methods of construction, although not intellect of an exceedingly high order. The inability of the mediæval builders to determine statically the thrusts of their vaults and arches was responsible for many disastrous accidents, such as the fall of roofs and towers. For the actual setting-out of the vaulting very little geometry is required, and the same can be said of the window tracery. But the intellectual activity devoted to the problems of engineering is not the same as that which is concerned with the development of an architectural conception. The method may be similar, for the laws of logic are universal, but the character of the subject-matter in the two cases is widely different. It is the too great absorption of Gothic builders in the problems of construction that renders so much of their architecture essentially materialistic, in spite of the wealth of devotion that was expended upon its ornamentation. This is not entirely the fault of the Gothic builders, for they had to deal with small stones, and the art of making concrete, so well known to the Romans, had been forgotten; and it is a mark of their great energy that (occasionally), in spite of all the difficulties under which they laboured, they were able to achieve splendid compositions in massing—such as Durham Cathedral. The historical fact remains, however, that in the mediæval ages the ecclesiastical authorities did not encourage freedom of thought, and it is only natural that the weakness of intellect which was shown in the shameful persecution of philosophers and scientists has found expression in mediæval architecture too.

When reference was made to the "ever-youthful and vigorous" Classic architecture, it was not intended that the word "Classic" should be interpreted in a narrow sense, as if it represented something complete and rigid. The virtue of this style consists in the fact that, not being founded upon temporary constructional necessities, it has an element of permanence which is absent from Gothic, and, being the product of intellectual growth, it is extremely flexible and capable of indefinite growth. It may ultimately develop into the "universal style" to which your correspondent looks forward.

A. T. E.



CURRENT ARCHITECTURE. XXVIII.—THE UNIVERSITY OF THE CAPE OF GOOD HOPE, CAPE TOWN: VIEW IN HALL.
W. HAWKE, F.R.I.B.A., AND W. N. MCKINLAY, ARCHITECTS.



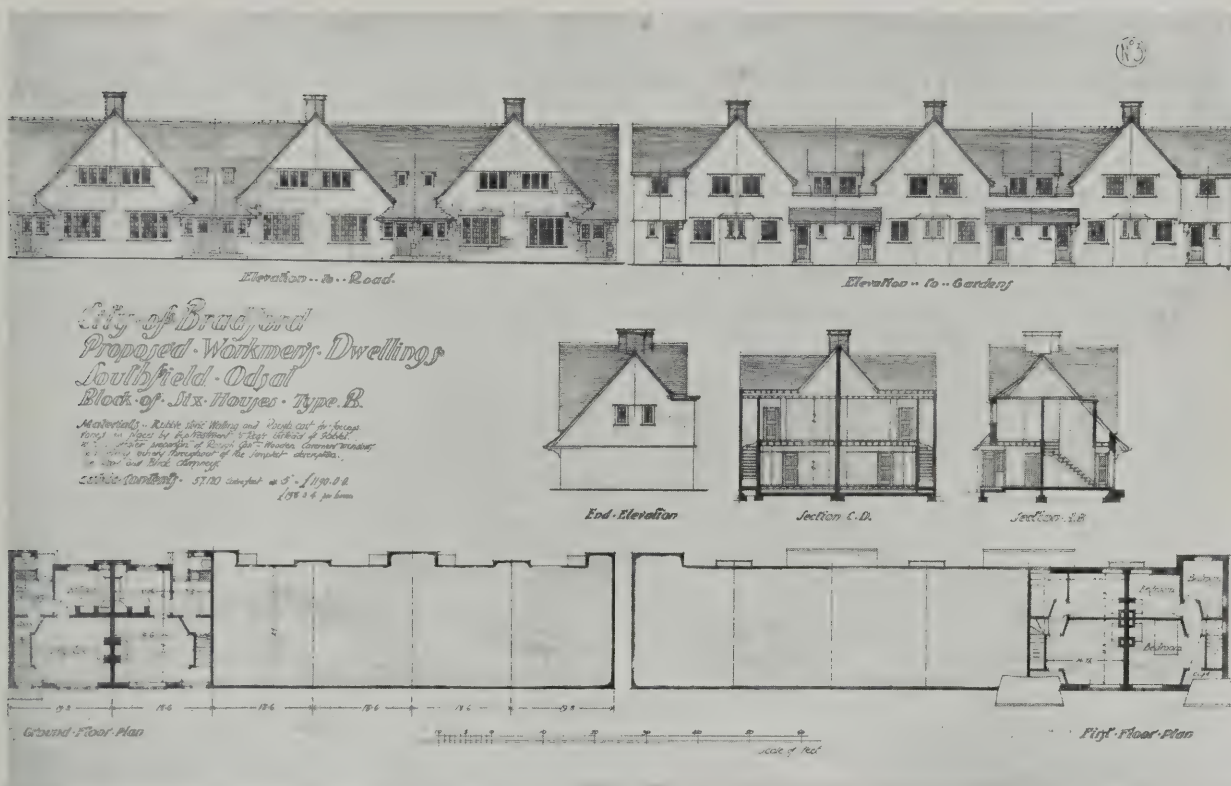
CURRENT ARCHITECTURE. XXIX.—THE UNIVERSITY OF THE CAPE OF GOOD HOPE, CAPE TOWN: VIEW
IN AMBULATORY.

W. HAWKE, F.R.I.B.A., AND W. N. MCKINLAY, ARCHITECTS.

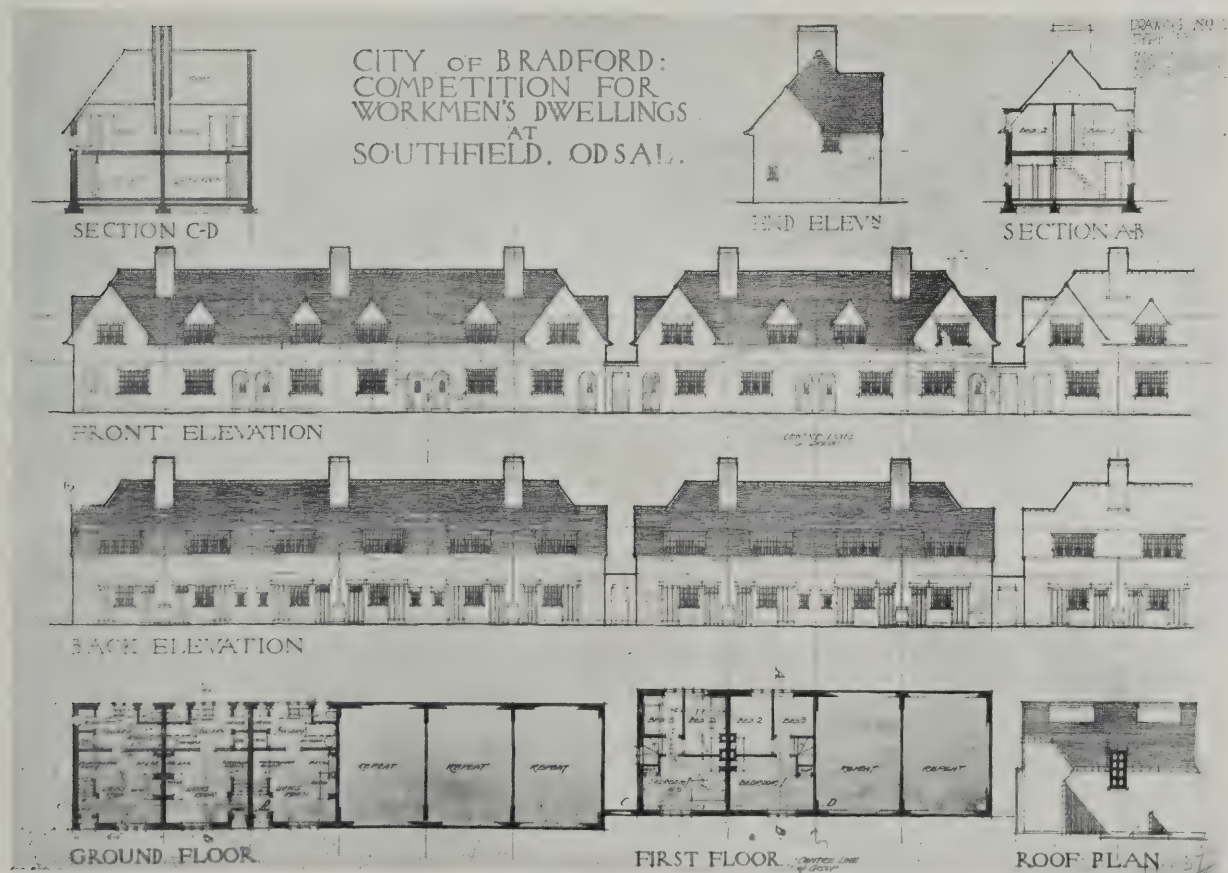


CURRENT ARCHITECTURE. XXX.—APARTMENT BUILDING IN AVENUE VICTOR HUGO, PARIS.

GAGEY, ARCHITECT.



Type B. To cost £182.
Design by H. S. East, A.R.I.B.A. (Awarded First Prize.)

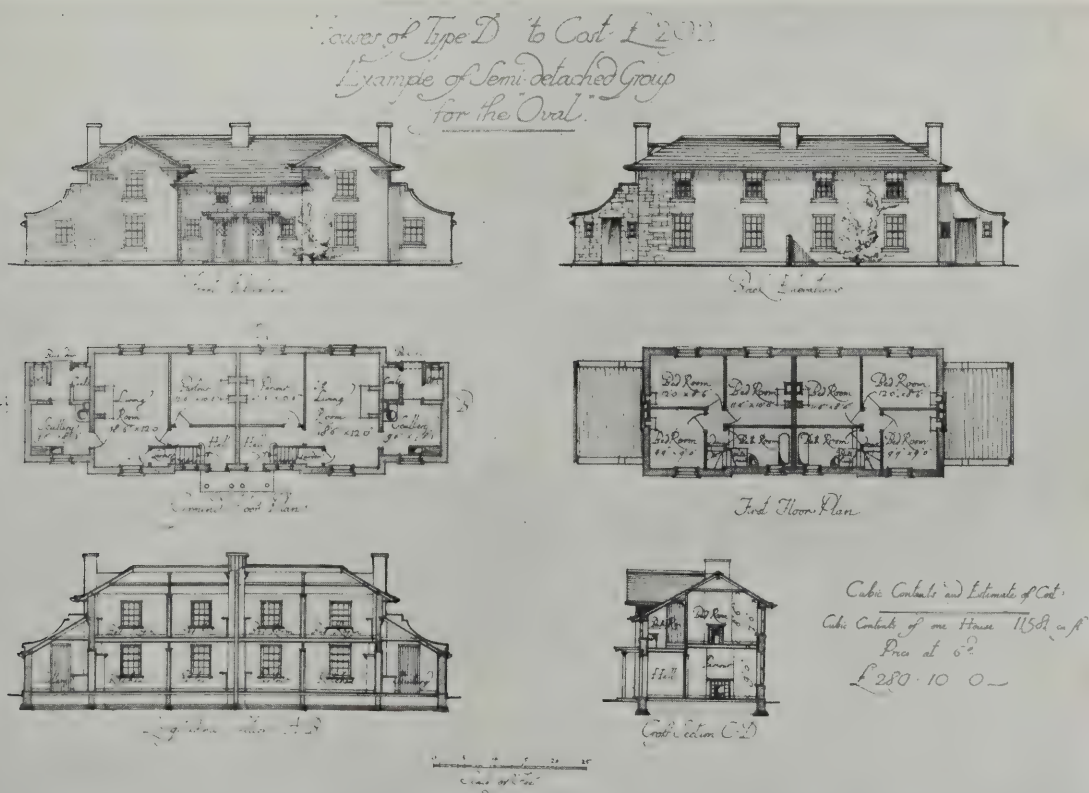


Type B. To cost £182.

Design by Geoffry Lucas, F.R.I.B.A., and Arthur Lodge, A.R.I.B.A., in conjunction with P. Badcock. (Awarded Second Prize.)



Type C. To cost £243.



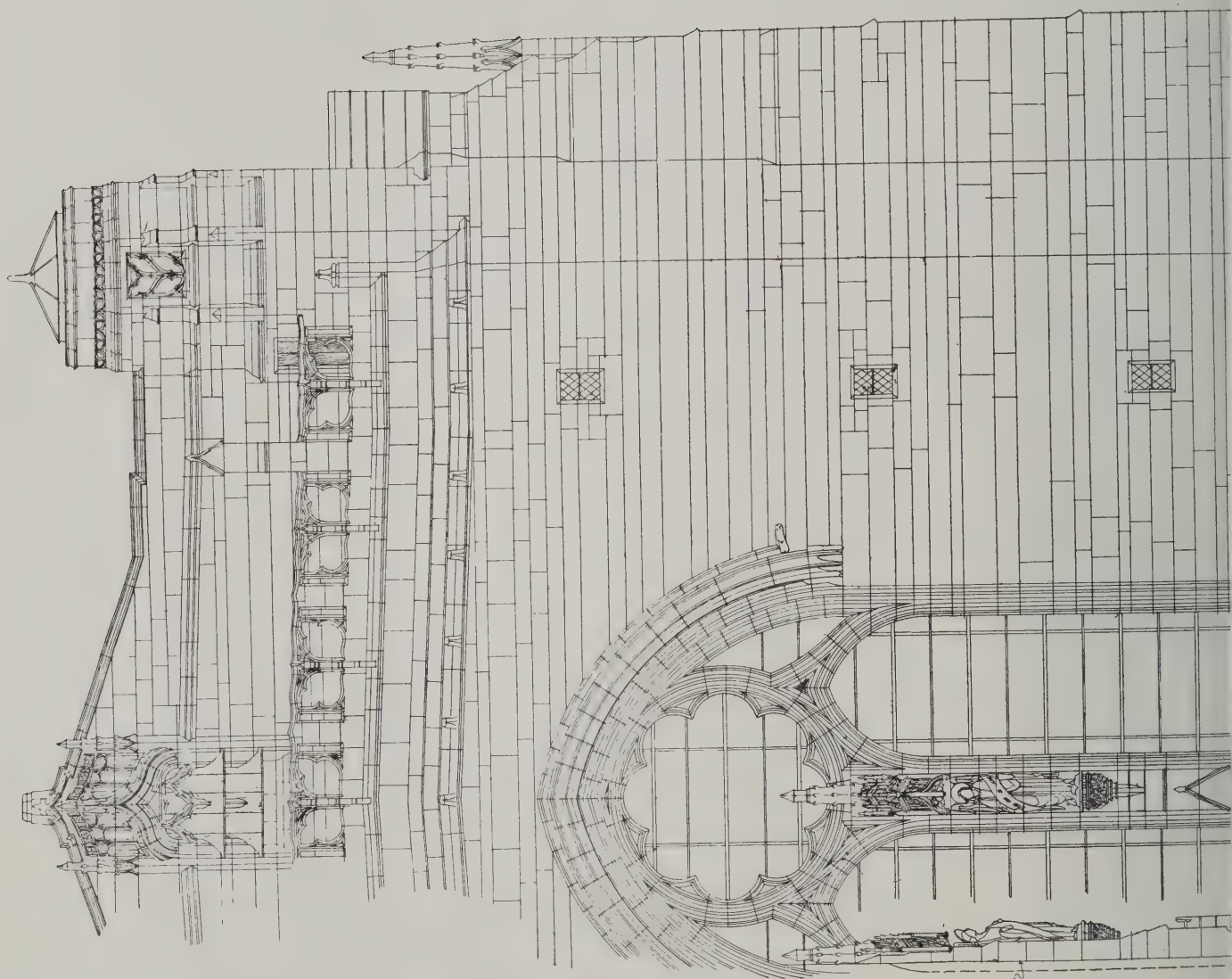
Type D. To cost £292.

By Patrick Abercrombie, M.A. (Awarded Third Prize.)

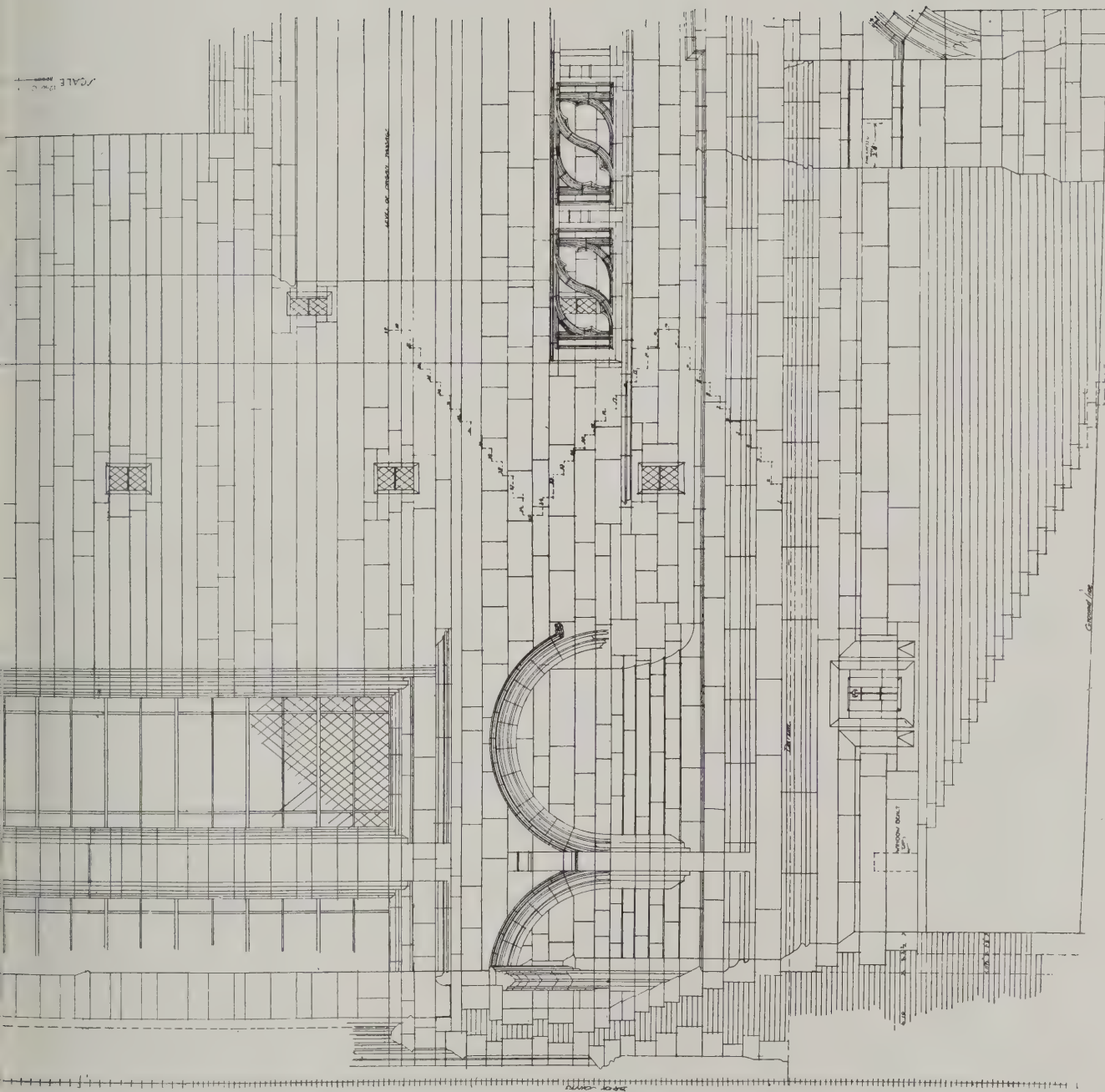


RESTORATIONS OF ANCIENT ARCHITECTURE. III.—THE TEMPLE OF JUPITER CAPITOLINUS, ROME.
From the Drawing by C. R. Cockerell.

0 7 8 9 10 15 20 25 30 OF FEET



Section of wall



WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS (NEW SERIES). IX.—LIVERPOOL CATHEDRAL: END ELEVATION OF QUASI-SOUTH TRANSEPT, NEXT CHOIR.

G. GILBERT SCOTT, ARCHITECT.



BRADFORD TOWN PLANNING AND HOUSING COMPETITION.

THE competition just held by the Bradford Corporation has been the means of getting together some of the latest views of English town-planners on site plotting and the design of cheap houses. The premiums offered were £300, £200, and £100, and the straightforward way in which the whole competition was conducted, under the guidance of the assessor, Mr. Henry T. Hare, F.R.I.B.A., must have accounted for the large number of designs sent in. The estate to be dealt with is about fifty acres in extent, and about 600 houses were to be placed on it. The points to be noted in connection with this competition are that the houses were to be at the rate of about twelve to the acre; and instead of allowing a considerable amount of space for playgrounds, allotments, etc., practically the whole of the unbuilt-on land was to be used for private gardens. No public buildings were to be provided, but there were to be twelve shops. The by-laws were to be strictly regarded, insisting as they do upon a minimum 42 ft. road and the provision of back passages everywhere, except in the case of semi-detached houses. Neither grass margins nor cul-de-sacs were allowed.

The result, as might be expected, was that the plans were unable to show any quaint corners and picturesque nooks, having to be treated in a hard and even a bald way. The winning design, for example, shows no trees on any of the streets, but only what

were presumably wide expansions of unbroken macadam.

The Corporation, however, is possessed of certain powers under an Act passed in 1910, which were apparently obtained in order to relax road construction; but these powers are so hedged about by prohibitions and restrictions that they are practically useless. Only two competitors made any attempt to avail themselves of them, and it is doubtful whether a strict adherence to the requirements of the Act would have allowed these plans to be passed. We would suggest that the Bradford Corporation overhaul the powers which they possess for constructing narrow roads, and make them of some real value.

Competitors had to bear in mind two important physical features of the site: one was a broad road, 60 ft. wide, to be taken across the site, and the other was a small brook or beck, which was to be retained, its course, if necessary, to be diverted diagonally.

With regard to the housing requirements, the competitors were asked to design four types of cottages, the cost of each type being given in round figures, namely, £165, £182, £243, and £292; but we think it unfortunate that a definite price per cubic foot was not also fixed for the competitors to work to. One cannot rely very much upon a competitor's suggestion that his method of designing was such that his houses could be built at 1d. or ½d. per cubic foot less than



BRADFORD TOWN PLANNING AND HOUSING COMPETITION: FIRST PREMIATED DESIGN.

BY H. S. EAST, A.R.I.B.A.

those of another; indeed, roughly speaking, one might say that most of the good designs sent in could be built for about the same price per cubic foot. It would have been better if the Corporation had suggested a figure like 6d. per cubic foot to which everyone had to work. As a result, in the three premiated designs the first suggested 5d., the second 5½d., and the third 6d. for the smallest houses. It will thus be seen that these houses, in order to fit in with the final figure given, would be of three different sizes. The fact that the winning designer happened to quote the lowest price was not, we imagine, any reason for his success.

In making the awards, however, it would appear that the assessor was probably more concerned with the laying out of the estate and general indications of capable house planning rather than with minute economics of cubic content.

The first premium was awarded to Mr. H. S. East, A.R.I.B.A., of London; the second to Messrs. Geoffry Lucas, F.R.I.B.A., and Arthur Lodge, A.R.I.B.A., London, W.C., in conjunction with Mr. P. Badcock; and the third to Mr. Patrick Abercrombie, M.A., Department of Civic Design, Liverpool University. The first two plans carried the avenue straight across the site, the third curved it to follow the contours which drop from the north to south, but rise up again just before descending, finally to reach the Halifax Road on the southern boundary; in all there was a drop of some 80 ft. from the highest to the lowest point.

The first premiated design was very largely symmetrical. The shops were placed on a semi-circle to one side of the main avenue, with an outer circle of houses beyond it. On the western side there were two rings of approximate octagonal shape. The emphatic point, therefore, was on the centre of the estate, from which radiated the general pattern of the plan. A remarkable feature of this scheme, also, was the absence of tree planting. One cannot help feeling that, although the city by-laws had not allowed grass margins, the residential roads, which had to be of a minimum 42 ft. width, would be improved by a judicious use of trees. The design of the houses was exceedingly picturesque, with steep roofs and deep indentations in the blocks, and one felt that the requirements of the original conditions for exceedingly picturesque houses had been well met. Whether, however, this picturesqueness is entirely suited to the locality, is another question; and it is evident from some of the other designs submitted that this was not felt to be quite the case. The cottages, for example, of the second premiated were very much severer in line,

making use of plain pantile roofs and a greater amount of simple wall space.

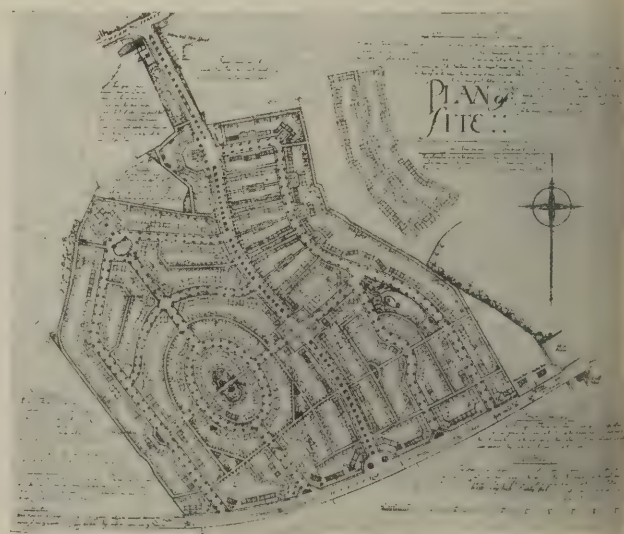
The plan of the second premiated design had no central point with radiated regular features, but suggested in its general but regular spreading out the descent of the hill-side. The main road, as before mentioned, was kept quite straight, and from this two diagonals stretched out, that on the west having a further oval shape attached to it in order to fill in the extra space on this side. On the other side the outer diagonal was cut short in order to bring it within the boundary lines. The shops, instead of being in the centre, were considerably nearer the top, and filled a very well-designed space on either side of the avenue. On the whole, this plan was an exceedingly clever attempt to produce the effect of a regular scheme on uneven ground, at the same time emphasising the slope. Anyone walking down the main avenue would have been impressed with the regular roads which branched off on either hand; one would hardly have realised what an awkward site had been so treated, its main axis being apparently central, but in reality lying much towards one side.

The third premiated design was different in many respects from most of the others sent in, and especially from the two awarded first and second place. It showed a much more picturesque treatment of the plan, combined with a more formal and regular treatment of the houses. It is rather a question of taste as to whether one prefers to treat a sloping site regularly or allow the undulations to dominate the plan. In this scheme the latter alternative had been adopted. The main avenue was curved in such a way as to make it rather more central and almost parallel with the eastern boundary. On the western side a somewhat formal regular layout was attempted, the chief feature being a large oval containing a "west-end" of the more expensive houses grouped round an oval. On the other side an attempt was made in the upper portion to make use of the by-law for narrow roads possessed by the Corporation.

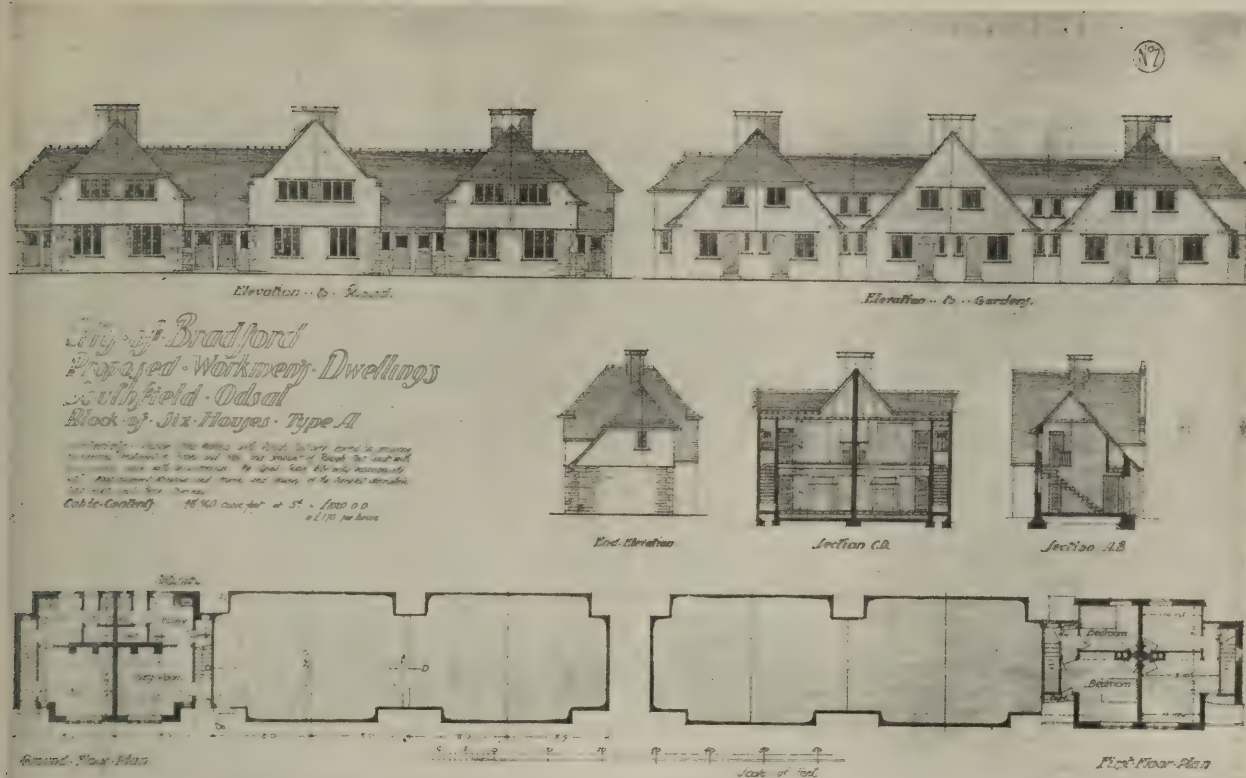
The shops were grouped at the highest part of the site, near to the older shops already existing in High Street. A feature of the cottage plans was an evident attempt to provide sitting-rooms lit from both sides. This would consequently increase the frontages, and though we did not measure, we rather suspect that this plan showed a greater length of road frontage than the first premiated design. The houses in their exterior were treated formally, with rather low-pitched roofs and sash windows, the only ornamental features being projecting porches.



Second Premiated Design. By Geoffry Lucas, F.R.I.B.A., Arthur Lodge, A.R.I.B.A., and P. Badcock.



Third Premiated Design. By Patrick Abercrombie, M.A.



Type A. To cost £165.

Design by H. S. East, A.R.I.B.A. (Awarded First Prize.)

BRADFORD TOWN PLANNING AND HOUSING COMPETITION: DESIGNS FOR WORKMEN'S DWELLINGS.

Mr. Percy Houfton's lay-out plan was exceedingly simple; too rectangular, we imagine, to have caught an assessor's eye, but very sound in its economic arrangement. His house plans and fronts recalled similar work of his done elsewhere, and showed great skill in their interior arrangement. His shops were located at the centre.

Messrs. Lanchester and Rickards boldly went in the face of the answers to questions, and showed a large central open space, surrounded by the best houses. This circus, though fine in itself, and located where it could be obtained practically on the level (an absolute essential for a circus), had one practical drawback in the fact that the main avenues hitting its circumference had to be carried round it; this would be a considerable drawback if it were turned subsequently into a tram route. Should it have been decided to take the trams straight across the circus, this would have gone far towards spoiling its effect. The cottages were, perhaps, more ordinary than one would have expected. They had some similar deep breaks in the blocks to those in the winning design, which produced an excessive amount of external walling. Perhaps the most interesting feature of this scheme was the thought that had been given to the connection of the estate with surrounding future development. These connections were chiefly obtained by means of cross-roads.

Mr. Clapham Lander's plan, like several others, bore close affinity to the second; that is to say, a more or less regular spreading out either by diagonals or segments or circles from the top narrow neck.

Messrs. Gascoyne and Nott's drawings were remarkable for the exceedingly beautiful perspective submitted, and for the attractive nature of the houses, which, with their high-pitched and highly grouped pantile roofs, recalled some of Mr. Lutyens's work at Hampstead. Particularly interesting was the group illustrating type D. The site plan was rather too much cut up, and showed an over-amount of striving at symmetry, using straight lines everywhere and no curves.

Messrs. Collcutt and Hamp also illustrated their scheme by a charming view. Their plan appears to be the only one which seriously tried to make use of the disastrous by-law to which reference has been made. The result, though deserving all praise for ingenuity and thoroughness, was merely sufficient to demonstrate the futility of the by-law, and showed that it could only be applied on a perfectly flat prairie and with an absolutely regular gridiron plan.

Messrs. Alexander Harvey and H. G. Wicks submitted a plan which was eminently reasonable, though not very thoroughly worked out. The houses, however, showed the economic skill of the architect of Bournville.

Mr. Gilbert Waterhouse appeared to have given most of his attention to reproducing on paper a series of charming stone-built manor houses. These represented, perhaps, rather too serious an endeavour to preserve local character. Indeed, one could not but feel that the houses were somewhat reminiscent of the reproductions that we are accustomed to see at exhibitions. In spite of this, however it is impossible to withhold admiration for the skill they display. At the other extreme we have Mr. A. A. Carder, whose south-country cottages, though possibly admirable in themselves, would appear hopeless exotics on the hillsides of Yorkshire.

Mr. J. H. Sellers's plan was quiet and thoughtful in character, but his cottages were overburdened with rusticated doors. Though we heartily deprecate the attempt at aping rustic roughness in a garden suburb, one feels equally averse to loading cottage designs with features more appropriate to public buildings.

The competition produced the usual big display of local talent; but, on the whole, the Corporation were justified in holding an open competition, by means of which they were able to secure the services of those most in touch with the modern developments in estate planning and house design. Looking through the local work submitted, it does not appear that this end could have been otherwise achieved.

THE R.I.B.A. AND STATUTORY REGISTRATION.

THE following report and recommendations of the Council of the R.I.B.A. were submitted for the consideration of members at a special general meeting held on Monday, December 1st:

On January 8th, 1912, the proposals of the Council for the absorption of the Society of Architects and the promotion of a Registration Bill were submitted to a general meeting of the Royal Institute and referred back to the Council for further consideration. The Council thereupon appointed a committee, with numerous representatives of the provincial societies, to consider the whole question of registration and to report to the Council upon it.

The Registration Committee devoted more than twelve months to an exhaustive discussion of the business referred to them, and on March 28th, 1913, presented a report. It will be seen that the report emphasised the fact that in the opinion of the expert advisers of the Royal Institute there is very little prospect of any Bill for the Statutory Registration of Architects becoming law in the near future, and stated that, in the opinion of that committee, "many years must elapse and great (possibly useless) expenditure must be incurred before registration by statute can be effected."

The Council, acting on the advice of the Registration Committee, decided to obtain the opinions of the councils of the allied societies upon the alternative policies suggested in the report—namely, that of proceeding at once with the Bill as drafted, or, in the alternative, that of obtaining by a new Charter the recognition by the Privy Council of the compulsory examinations of the R.I.B.A. for all intending architects, and of such a scale of charges as the Privy Council may approve.

In April, 1913, copies of the report of the Registration Committee were sent confidentially to these bodies, and they were requested to give careful consideration to it and to submit their opinions to the R.I.B.A. Council in due course. The Council meanwhile decided to appoint a representative committee, to be called the Constitutional Committee, for the purpose of considering all matters that might affect the constitution, organisation, and functions of the Royal Institute. As the Bill drafted by the Registration Committee had a serious bearing upon these points, the report was referred to this committee, who were requested to consider it from the constitutional point of view, and to report to the Council upon the alternative policies suggested by the Registration Committee.

The Constitutional Committee carefully considered the subject referred to them, and had the advantage of having before them the opinions received, up to date, from the councils of the allied societies.

Though some of the replies are in favour of proceeding with a Registration Bill in Parliament, the Council are strongly impressed by the reluctance of others to take such a course, and by the opinion so definitely expressed by the Registration Committee as to the extreme difficulty of getting such a Bill placed upon the Statute Book.

The resolutions of the general meeting of March 4th, 1907, committed the Institute to the policy of endeavouring to obtain the statutory registration of architects through the Institute; but it now appears to the Council that the possibility of obtaining such legislation is extremely re-

mote, and they are further of opinion that the Supplementary Charter of 1909 and the by-laws governing the Licentiate class, and also the by-laws made under the Charter of 1887, which limit the voting power of the Associate class, present serious obstacles to Parliamentary action by the Royal Institute.

The Council point out that the Charters and by-laws of the R.I.B.A. would be materially affected by a Registration Bill, and that a Bill cannot be successfully promoted unless it has the express support of all classes of members of the Institute, whose opinion must be obtained and recorded at general meetings, and, inasmuch as at such meetings Licentiates cannot vote, the express support of this class cannot be obtained.

The Council are therefore of opinion that it is essential to remove the disabilities referred to above before any further action can be taken in respect of registration by the Royal Institute.

Under these circumstances the Council are of opinion that the Institute would be well advised to adopt the alternative policy suggested in the report of the Registration Committee, and to apply to the Privy Council for a new Charter, which would at the same time obtain for duly qualified architects a public recognition of their qualifications, give them substantial benefits which cannot be obtained at present by any other means, and remove the existing obstacles in the way of any future Parliamentary action.

The Council are of opinion that the time has come to present a petition praying His Majesty to grant a new Charter containing such further privileges and powers as are required to promote effectively the advancement of architecture by enabling the R.I.B.A. to register and to distinguish persons qualified to practise, and that His Majesty should be asked to ordain as follows:

(1) That all persons who at the time of the granting of the Charter have received a diploma of membership and the rank either of Fellow, Associate, or Licentiate, and all persons being members of and approved by a society allied with the R.I.B.A. or of any branch of the R.I.B.A. who at the time of the granting of the Charter are shown to be engaged in the practice of architecture, and all persons who after the granting of the Charter shall have been examined and duly approved by the Council of the R.I.B.A., shall have the exclusive right to use and may use the distinctive title "Chartered Architect," in addition to any other diploma, rank, title, honour, or dignity to which such person may be entitled. That the Royal Institute shall be empowered to make and maintain a register of all persons entitled to use the distinction of "Chartered Architect."

(2) That the R.I.B.A. be authorised, notwithstanding any disabilities at present existing, to make or amend by-laws to ensure to all classes of members adequate representation on the Council and standing committee and in all matters affecting the advancement of architecture and in the control of chartered architects.

(3) That the Council of the R.I.B.A., for the purpose of assisting and directing architectural education and testing the qualification of persons desirous of practising architecture, be authorised to control all examinations held to qualify for the distinction of "Chartered Architect," and,

subject to the approval of the Privy Council, to appoint examiners for the conduct of such examinations. That the Council of the R.I.B.A. be authorised to charge to candidates for examination and to chartered architects on receiving distinctions or diplomas granted by the R.I.B.A. such fees, annual and otherwise, as the Privy Council may approve, and to pay examiners such fees as the Council of the R.I.B.A. may determine and the Privy Council may approve.

(4) That the Council of the R.I.B.A. be authorised to permit persons who have passed such examinations in architecture as shall have been approved by the Council of the R.I.B.A. to use the distinction of "Chartered Architect."

(5) That the disabilities imposed by previous Charters and the by-laws on Associate members be repealed, and that all chartered architects on obtaining Associate rank of the R.I.B.A. be permitted to vote on all matters connected with the management of the Institute, including the Charters and the by-laws.

(6) That the disabilities imposed by previous Charters and by-laws on Licentiates be repealed and that chartered architects holding Licentiate rank of the Institute be permitted to serve on the Council or on any committee if duly elected and to be represented on the Council or on any of the four Standing Committees of Art, Literature, Practice, and Science by duly elected representatives.

That the Council of the R.I.B.A. be enabled to constitute representatives of the Licentiate class, to a number not exceeding ten to every 100 Licentiates at any time in the class, to be elected by the Licentiates in a manner to be hereafter determined.

That such representatives be empowered to vote on behalf of the Licentiate class at any general meeting specially convened for the purpose of dealing with any matter affecting the rights, privileges, emoluments, or discipline of chartered architects, and to vote on behalf of the Licentiate class in the election of the Council and the standing committees.

(7) That the Council of the R.I.B.A. be reconstituted and consist of: One President, four Vice-Presidents, one Hon. Secretary, twenty-one Fellows, ten Associates, such numbers of the presidents of allied societies as the Council may determine, one representative of the Architectural Association, the chairmen of the four standing committees (*ex officio*), the Chairman of the Board of Architectural Education (*ex officio*), one Licentiate representative to each complete 400 members of the Licentiate class, the number of representatives at no time to exceed five. That the Council be given power, by resolution of the Council confirmed by the general body, to alter the relative proportions of their members and to add to or diminish their numbers.

(8) That the Royal Institute be empowered, subject to the approval of the Privy Council, to issue a scale of fees payable to chartered architects.

(9) That the Royal Institute shall be able and capable in law to purchase, possess, hold and enjoy a hall, messuages, lands, and tenements or hereditaments of a yearly value not exceeding £5,000 per annum.

(10) That subject to the provisions contained in the new Charter the other Charters of the Institute shall, so far as

repealed, have full effect and validity, and shall be confirmed accordingly.

Report of the Registration Committee, 1912-13.

To the President and Council, Royal Institute of British Architects,

Gentlemen,—The committee investigating registration, being of opinion that it is advisable to acquaint the Council with the stage which the inquiry has now reached, beg leave to report to the Council thereon as follows:

The committee have held fifteen meetings.

1. After considering the *established principles* governing registration and the position created by the action already taken by the R.I.B.A., the committee first submitted a complete case for registration as it stands to-day to Messrs. Markby, Stewart and Co., solicitors, and Mr. John Kennedy, Parliamentary Agent, and were by them advised that a Bill strictly in accordance with the established principles appeared to be impracticable for the following among other reasons:

(a) That the established principles are of suitable material on which to frame a Bill.

(b) That it is contrary to public policy and Parliamentary practice to create such a monopoly as would result from a measure based on the established principles as defined by the reports, recommendations and resolutions, and no public case can be made out in justification.

(c) The action taken by the R.I.B.A. in pursuance of the course authorised and based on the established principles has failed to achieve the expected and desired result, the whole of the practising architects not being included in the membership, and now cannot be, as the class of Licentiates is closed.

(d) That if such an Act were passed, a complete class of members (namely, Licentiates) would be amenable to statutory control without representation on the governing body.

They would thus be in a worse position under the Act than members of allied or other societies, and this cannot be altered in view of the terms of establishment and conditions under which this class has been formed and members admitted.

2. In the position thus disclosed the committee felt that a report which merely stated these facts would be useless, and that it would be impossible for the general body to arrive at a proper decision unless at least a suggestion for a Parliamentary Bill suitable to the position which has arisen was simultaneously placed before it.

The committee, therefore, proceeded to consider a measure on these broad lines such as the committee believe the profession now demands, and which, moreover, they were advised is the only practical solution if registration is to be effected by statute.

The Draft Registration Bill of 1905, having been recommended to the committee by Messrs. Markby, Stewart and Mr. Kennedy as a suitable measure of this kind, was accordingly considered, and, having been thoroughly revised and brought up to date, is now presented to the Council, the committee being of opinion that as this Draft Bill as now revised goes beyond the principles adopted by the general body on March 4th, 1907, the Council should consider and come to a decision upon it before any further steps are taken by the committee.

3. The committee desire to emphasise the fact that they are advised there is very little prospect of any Bill of this nature becoming law in the near future:

Firstly, by reason of its subject-matter.

Secondly, in consequence of the present congested state of public business.

In confirmation of this view the committee beg to refer to the fact that analogous Bills promoted by the Chartered Accountants and by the Society of Architects which have been in course of promotion for many years past cannot be said even yet to have emerged into the parliamentary arena.

4. It is only fair to state that the committee were not unanimous about the Bill and that widely divergent views were held on the subject generally and on its principles, procedure, and details.

From the discussions which have taken place in the committee, and from the evidence before us, we are of opinion that many years will elapse and great (possibly, useless) expenditure must be incurred before Registration by Statute can be effected.

Registration being so complex and controversial a subject, there seems every prospect that when the present position is explained to the general body of members and the Bill is laid before them, a similar divergence of opinion will be found and considerable opposition will be encountered.

5. This, in conjunction with the urgent need for some action to be taken by the R.I.B.A. to allay the agitation, now of many years' standing and detrimentally affecting the welfare of all practising architects, suggests the necessity for the Council to call the general body of members together at an early date for the following purposes:—

(a) To receive the reports of the solicitors and parliamentary agent.

(b) To examine the Bill as drafted and, having done so, to decide:—

(1) Whether an attempt should be made to get the Bill passed as drafted, or with such modifications as may be found necessary; or, if not,

(2) Whether some alternative course apart from Statutory Registration should be determined on, such as obtaining by a new Charter the recognition by the Privy Council of the compulsory examinations of the R.I.B.A. for all intending architects, and of such a scale of charges as the Privy Council may approve.

6. In conclusion and explanation we venture to point out that a review of the evidence necessary for the preparation of this report has forced upon us the opinion that there are very serious difficulties in the way of obtaining Statutory Registration, and that, having regard to the great importance of the subject, the Council should consider the advisability of submitting this report to all the allied societies before presenting it to the general body.

We have the honour to be,

Mr. President and Gentlemen,

Your obedient Servants,

JOHN SLATER, Chairman.

C. STANLEY PEACH.

March 28th, 1913.

Points from the Discussion.

Mr. Reginald Blomfield, in the course of a long speech formally presenting the report and recommendations, said: "The position, shortly, is this. Our expert advisers tell us that under the present circumstances there is an extremely small chance for a considerable time of a Registration Bill being placed on the Statute Book. They also advise us that the effort to do so would involve us in very considerable expense. We also find that though some of our allied societies are in favour of going forward with the Registration Bill, others are against it. Therefore,

there is a serious division of opinion on that matter. And in the third place we meet with a serious constitutional difficulty, because it is obvious that a Registration Bill must affect all classes who are connected with the Institute. And yet one of our classes is, by the Constitution, debarred from giving any expression of opinion on this matter. We are, therefore, in regard to proceeding directly to a Registration Bill, practically in an *impasse*. Your Council have given all these factors of the question most careful and anxious consideration, and the result they have arrived at is the alternative, the second of the two courses that were suggested to you by your Registration Committee, that we should proceed by way of a new Charter."

Mr. Stanley Peach, F.R.I.B.A., in formally moving the adoption of the report and recommendations, said: " . . .

You are asked to-day to grant the Licentiates that which in the end the Institute was compelled to concede to the Associates, but to a far less extent. Over 2,000 men have been drawn into this Institute as Licentiates and have been placed under permanent disabilities. They are unable to express any opinion or to vote upon matters which vitally affect the means whereby they earn their daily bread and which affect their professional reputation and status. The Council desire to give them reasonable means of having at least a voice in these matters, and also to remove the last of the disabilities attached to the Associates; and if there is any real hardship in these proposals it falls on the Fellows rather than the Associates. The Fellows are asked to deal generously with the Associates, and the Fellows and Associates to extend a like generous treatment to the Licentiates."

Mr. K. Gammell, A.R.I.B.A., in seconding the motion, said: "You must recollect that the Licentiate class were brought in for a specific purpose. Certain inducements were held out for them to come in, and by reason of that they naturally look to our Council and this Institute to do something to bear out their promise with regard to themselves, which was to go forward in the attempt to obtain Registration."

Mr. S. Douglas Topley, A.R.I.B.A., moved the following amendment:—

"That in the opinion of this meeting of the R.I.B.A., it is undesirable to come to any decision in regard to the report and recommendations of the Council without further information; and in order to arrive at some definite policy in regard to future action, a further meeting should be called before the end of January next for the purposes suggested by the Registration Committee in Clause 5 of the report of March 28th, 1913, and that with the notice of that meeting every member should receive from the offices of the Institute:

"(a) A copy of the Bill as revised.

"(b) Copies of the reports of the solicitors and parliamentary agents, and

"(c) Copies of the whole of the documentary evidence upon which these reports were based."

In the course of his subsequent remarks Mr. Topley said: "This proposal, to obtain the exclusive right to the term 'Chartered Architect,' will not secure recognition by the public. Fellows of the Surveyors' Institution who have the right to call themselves Chartered Surveyors with the same object are found not to do so, except in very few numbers. And I understand that those who do use the term find that even their own professional col-

leagues are unaware of what it means. If I understand the position of the registrationists correctly, they do not claim that qualified architects should be recognised, but that unqualified architects should not be created in future. But that will not be secured by using the term 'Chartered Architect,' and if that is the only reason for approaching the Privy Council, I think it is a mistake to trouble the Privy Council in the matter. . . . In the Charter of 1909 the position of the Licentiate is stated clearly. On page 37 of the 'Kalendar' the Charter says: 'A Licentiate shall not be a corporate member of the Royal Institute.' That is an unfortunate position for Licentiates, of whom I desire to speak in terms of studied respect. But the Licentiate can overcome such disability, and he will be welcomed as a member of the Institute with open arms whenever he cares to avail himself of the opportunity which is presented to him twice a year of becoming fully qualified. Meantime the dignity and prestige of this Institute must be maintained, and the proper men to maintain it are those who have given some proof of their desire to take part in and further its objects by submitting to an examination. . . ."

Mr. Herbert A. Welch, A.R.I.B.A., in seconding the amendment, said: "We should have all the evidence and documents before us for mature and deliberate consideration. This view I think you will find justified by the replies from the Councils of the allied societies. . . . We find that this subject is of such importance that the societies' views are divided as follows: For the Council's proposals, 5; for the Registration Bill, 6. As I read it, two societies are doubtful, and no less than five societies have not yet completed their consideration of the report."

Mr. Blomfield interposed to say that two further communications had been received, one from Sheffield, against the Registration Bill, and another, from the Northern Architectural Association, agreeing to a new Charter as a preliminary to the promotion of a Registration Bill.

Mr. Edwin T. Hall, F.R.I.B.A., said: "The scheme before us is a scheme under various heads. It is, first, to give the title 'Chartered Architect.' I want to draw the Council's attention to those who are excluded from the privileges of being called 'Chartered Architect,' if that is a privilege: it excludes all members of the Royal Academies of England, Ireland, Scotland, and Wales. That, I think, is a grave omission. If the architects are to be embodied, we must incorporate the members of those distinguished Societies. It also excludes all members of the Society of Architects. . . . It also excludes all non-members of any societies who are practising as architects in this kingdom. . . . Resolution No. 2 is to give to Honorary Fellows, Hon. Associates, and Hon. Corresponding Members representation on the Council and committees. That is an entirely new departure, and, I venture to think, a very dangerous one. . . . The disabilities of the Licentiates are, first, that they are not corporate members of the Royal Institute. The first thing, therefore, you are going to do is to remove that disability and make them corporate members of the Royal Institute."

The President: "To a very limited extent."

Sir Aston Webb, R.A., said: "The gist of the thing is that we should go for registering the members of this Institute by Charter instead of going to Parliament; let us do it ourselves, and I think we shall do it very much better. It is not wise to

bind ourselves too much by parliamentary statutes. I say this is merely a step; but in the meantime, in order to do something, and to prevent these meetings year after year and doing nothing else, see if we cannot agree that the Institute shall try registering itself and its members and so give the public some guarantee that the members of the Institute are men whom they may safely go to as appraisers in architectural matters."

Mr. G. A. T. Middleton, A.R.I.B.A., having brought the attention of the meeting back to the amendment, and Mr. John Slater, F.R.I.B.A., having spoken in favour of the Council's resolution,

Mr. W. H. Seth-Smith, F.R.I.B.A., said: "What we want is a register of qualified men, and I agree with Sir Aston Webb that this Institute is the body to do it. That we laid down as the initial principle when we started this movement, that the Institute should be the sole examining body, if that is possible, and that the Institute should be the registering body. What we want now is in some way to get as near to that ideal as we can."

Mr. Leonard Stokes said: "There is an adage which says half a loaf is better than no bread. The present proposals of the Council seem to me to be an attempt to get half a loaf, and, as Sir Aston Webb says, we shall go forward with a likelihood of success; and as there is no chance of getting a Bill at present, what is the use of bumping our heads against a brick wall? It is better to proceed by Charter and get what we can under a new Charter. When we get more powerful, and Parliament has less to do, then we may get all we want."

After some further discussion, in which Mr. J. S. Gibson, Mr. John Brooke, Mr. Brodie, and several others took part, it was decided, on the motion of Sir Aston Webb, to adjourn the meeting. The information stipulated in Mr. Topley's amendment is published in the current issue of the "R.I.B.A. Journal," from which this report is derived.

NEWS ITEMS.

New Schools in London.

Work is now proceeding in London in connection with the erection of eleven new elementary schools and one secondary school and the enlargement of five elementary and two secondary schools, at a total cost of £500,000.

Memorial to Elizabeth Fry.

The corporation have, through the First Commissioner of Works, been presented with a statue of Elizabeth Fry, by Mr. Alfred Drury, R.A. The statue and pedestal will be placed at the top of the staircase, beneath the dome in the new Sessions House in the Old Bailey.

The Wellington Monument.

The committee responsible for the completion of the Wellington monument in St. Paul's Cathedral have presented to the National Gallery Stevens's unfinished model of the Duke on horseback. The model has been kept in the Crypt of the Cathedral.

Pontoon Bridge across Panama Canal.

After the removal of the present bridge at Paraiso a railway track and highway are to be carried across the Panama Canal at an elevation of about 113.5 ft. on a temporary wooden pontoon bridge. This bridge will be proportioned for a train-load of 4,000 lb. per linear foot, and will contain about 600,000 ft. of yellow pine or fir timber and 375,000 lb. of iron and steel.

The floor will be carried on wooden trestles 14 ft. apart seated on the deck of a 55-ft. by 378-ft. wooden scow, 6 ft. deep. The scow will be trussed under the trestle bents to distribute their loads, and will be braced every 2 ft. between trestles. The structure will be braced longitudinally by two trusses with their bottom chords on the bottom of the scow and with their top chords acting as track stringers. The pontoon will be revolved horizontally about a fixed pivot, and a recess will be provided in the canal bank to receive it.

Appointment.

Mr. J. F. Bell, architect, of Sunderland, has accepted an appointment under His Majesty's Government in the Federated Malay States, and is due to leave England this month. Mr. Bell was trained at the office of Messrs. Henderson and Hall, Sunderland, and at present holds an appointment in the architect's department of the Durham County Council.

The Roman Gateway at Colchester.

Colchester Town Council have decided to take immediate steps to preserve the foundations of the ancient main gateway of the Roman city of Camulodunum, which was recently discovered in the borough by the Morant Club. The Council also decided to afford facilities to the public to view the ruins, which the Morant Club declares to be the most perfect example of a Roman city gate remaining in Britain.

Vienna's New Concert Hall.

A new concert hall has been opened on the Ringstrasse, Vienna. It is an imposing structure, covering an area of 3,750 square metres. The Academy of Music occupies part of the building, while three concert halls on the first floor seat 2,030, 893, and 414 people respectively. All three halls can be thrown into one for balls and entertainments, where gatherings of 5,000 to 6,000 persons can be assembled. In the large hall 120 musicians and 800 singers can be accommodated.

New Drill Hall, Newport.

New drill-hall buildings have been erected in Mendalgief Road, Newport, for the 4th Welsh Brigade, Royal Field Artillery (Territorials). They consist of a riding school (146 ft. by 56 ft. 6 in.), drill hall (91 ft. 6 in. by 54 ft.), with gun park and harness room at one end, and various offices, including a lecture room. Apart from the main buildings, there are a mobilisation store, harness rooms, etc., also two quarters for sergeant-instructors, with all up-to-date conveniences. There is also a spacious drill yard, 158 ft. by 140 ft. The buildings have been designed by Messrs. Maples Linton and Alan Davies.

Sheffield Memorials to King Edward.

Two memorials to King Edward, at Sheffield, have just been inaugurated. One is a bronze statue of his Majesty, erected in the centre of the city, and the other an institution for the treatment of crippled children. The statue, 10 ft. high and standing on a 15-ft. pedestal, is the work of Mr. Alfred Drury, R.A., and is one of the largest monuments of the late King to be found in the United Kingdom. The Cripples' Home, the site for which was given by the Duke of Norfolk, is situated in the Rivelin Valley.

Mr. Richardson's Lectures.

A further lecture of the series now being given by Mr. A. E. Richardson, at University College, on Eighteenth and Nineteenth-Century Architecture, is unavoidably held over until next week.

THE ARCHITECTURE OF PORTUGAL.*

BY W. H. WARD, M.A., A.R.I.B.A.

PORTUGAL, like most of the lesser States of Europe, has never stood in the direct line of development in European civilisation and art, but its civilisation and art are not for that reason without interest. Like other small countries, it has borrowed largely from greater neighbours, but has modified in borrowing in accordance with its national bent and in obedience to the various peculiar influences under which it has come from time to time. From one point of view both the architecture and the language of Portugal may be regarded as merely provincial varieties of those of the Iberian Peninsula as a whole, sharing with Aragon and Navarre, Leon and Castile, and the other Spanish kingdoms, not only the language and heritage of Rome, but also the stimulus of a national struggle against the Moors and contact with a brilliant Mohammedan civilisation. But the fact that the Portuguese have, with the exception of short interludes, succeeded in maintaining their independence as against the rulers of Spain also raises their language and arts to something more than provincial importance, while the peculiarity of their geographical position, shut off from all land neighbours but one, and forced to expand, if at all, by way of maritime enterprise, has brought them into contact with very varied and, in some cases, very remote civilisations, and given them the opportunity of playing a part in world history out of proportion to their numbers. It was they who discovered the sea route to Asia; their colonial empire rivalled those of Spain and England, and is still considerable; and they possess, in Camoens, the author of the *Lusiad*, one name in literature of European fame, which is more than can be said of many of the more highly organised lesser States, such as, say, Sweden, Holland, or Switzerland.

Moorish Influences.

Though Portugal was for 600 years a part of the Roman Empire, and has remained Latin in language, the remains of Roman architecture are scarce and not very important. The interruption of the barbarian and Mohammedan invasion was so complete that no independent development of a Romanesque style was possible. The Visigoths were not builders, although they had a fine decorative art of their own, as may be judged from the Visigothic jewels in the Cluny Museum in Paris. It was otherwise with the Moors, who built largely and well. Few buildings, however, actually dating from the period of the Moorish Dominion have survived, and they consist chiefly of fortifications, such as the ruined *Castello dos Mouros* on the heights above Cintra; but, on the other hand, there are a considerable number of buildings built or adorned by the Moriscos, or converted Moors, for their Christian conquerors, who had almost everything to learn in the way of civilisation from the foes they had overcome.

Moorish influence in structural methods and decoration thus left an enduring mark on Portuguese architecture and crafts. Side by side with Moorish work came the introduction of various phases of Romanesque and Gothic from abroad, principally from France and partly through the medium of Spain; each phase came independently from outside, as happened with Gothic in Italy, and did not develop each

out of the last, as was the case in France and England. The result of this is that types often appear in Portugal half a century (or even more) later than elsewhere—sometimes when they were already obsolete in their native countries—and that types belonging to different periods at home appear simultaneously in the same Portuguese building—a fact which often makes Portuguese mediæval architecture an extremely puzzling one to date. In the course of the fourteenth and fifteenth centuries the influence of England, with which there was a close alliance, and of the Low Countries, and even Germany, with which there was much commercial intercourse by sea, is often traceable side by side with that of Spain and France, while through all runs the Oriental strain.

The National Style.

Towards the end of the fifteenth century Portugal developed her one definitely national style, called *Manoelino*, though it began rather earlier than the reign of Dom Manoel. It consists essentially in an extremely exuberant and naturalistic form of late Gothic, analogous to the Flamboyant of France and the contemporary Gothic of Germany, with certain Moorish reminiscences. But soon there were grafted on to its motives, derived from Indian architecture on the one hand and

the Italian Renaissance on the other, the combination making a very curious and decorative, if over ornate, result. From the sixteenth century onwards architecture ran much the same course in Portugal as in other Southern countries. The delicate and fanciful Early Renaissance was followed by a severer Palladian phase, and that by various types of Baroque in the seventeenth and early eighteenth centuries, and those again by a more correct but duller Classic in the later eighteenth, while the modern architecture of Portugal, if it has any recognisable tendency at all, seems to hesitate between a revival of "*Arte Manoelina*" and French "*Art Nouveau*."

The Portuguese borrowed from the Moors a peculiar method of walling and forms of chimneys, arches, windows, and battlements. Most of these are found in the Palace of Cintra. The older walls there are built in the Moorish method of rubble stonework, strengthened at intervals by the introduction of bands of brickwork three courses thick. The chimneys over the kitchens form huge cones not unlike the Kentish coast houses, rising high above the roofs to carry off the fumes of cooking, and originally covered externally with a decoration of glazed tiles. Such chimneys are still found in Morocco at the



THOMAR : VIEW OF ROUND CHURCH AND NAVE.

*Substance of a paper read before the Architectural Association on Monday, December 8th.

present day, and similar ones of the seventeenth century occur in the monastery of Alcobaça, where they rise from cast-iron columns in the centre of a marble-lined kitchen, through which a clear brook runs in marble channels. The Moorish form of arch, of horseshoe shape, or with cusps, with a cusp resting on the capital, is pretty frequent, as also are the Moorish type of window, consisting of two cusped arched lights, often stilted, rising from slender shafts, sometimes twisted, with abaci moulded on the side but not on the face, the whole being enclosed in a rectangular moulded frame. The Moors also used various types of battlements, serrated or of other peculiar forms, and the strange battlements of the fifteen-century castle at Belem, in which the merlins take the form of shields, is perhaps a relic of these. Moorish tradition is also probably traceable in the curious tracery of some of the Portuguese Gothic churches. It does not grow out of the planes of the moulded window jambs, as in northern Gothic, but consists of geometrical patterns set in the openings and unrelated to its mouldings, being derived probably either from the pierced wood-screens familiar in Cairene work, or the Oriental method of filling window-openings with patterns of brightly coloured glass set in plaster.

Again, the Moors were skilful carpenters, and excelled in richly wrought woodwork. They had a peculiar method of constructing timber roofs with coupled rafters connected by crossed strips of wood arranged decoratively, and they sometimes covered the whole inner surface of the roofs with a decoration of interlacing laths in star and other patterns richly coloured. An example of this occurs in the Palace Chapel at Cintra. The Portuguese carried on this tradition for centuries, substituting moulded panel-work of various designs, but usually retaining the colour, as in the Halls of the Shields, of the Magpies, and of the Swans at Cintra, and the Hall of Degrees in Coimbra University.

The Moorish fondness for elaborate cabinet work also survived in the church screens and railings, with turned wood balusters of the Renaissance period, such as those of Sta Cruz and the new cathedral at Coimbra, and perhaps in the extraordinarily worried decoration of some of the Baroque churches of the type known in Spain as Churrigueresque, such as that of San Francisco at Oporto.

Coloured Tiles.

Perhaps the most obvious and enduring effect of Moorish tradition lies in the use of tiled linings. The manufacture of coloured glazed tiles in the East is almost as old as history. It was introduced into Spain by the Arabs, perhaps as early as the eighth century, but no existing examples can be proved to be earlier than the thirteenth. Their beauty of colour, and the cool expanses of a floor surface which they provide, so grateful in the torrid heats of summer, earned them a wide popularity in the Peninsula, which they have ever since retained. In the earliest examples the tiles are self-coloured—either bluish-green, brown, dark violet, or milky-white, and of various shapes, and they are laid in geometrical patterns. Later on a process was invented of producing a pattern on single tiles, by cutting a design in incised lines on a wooden stamp, which was reproduced in raised lines on the soft clay; colour was then run into the intervening spaces.

But after the expulsion of the Moors in 1609 the art of the tile-maker gradually declined, the colours lost in brilliance, and



BATALHA: TOMB OF PRINCE HENRY THE NAVIGATOR.

their range became restricted to blue designs on white grounds, with purple and yellow as occasional variants. The blue and white technique seems to have arisen simultaneously at Delft and in Portugal, and in each case seems to be the outcome of a desire to imitate Chinese porcelain, then becoming known in Europe.

We may now turn to the Christian architecture with which these various Mohammedan traditions and influence are interwoven. The earliest examples are naturally found in the north, and consist of an exceedingly simple and rude type of Romanesque churches of the eleventh and twelfth centuries, with rectangular naves and chancels, and occasionally a northern porch. After the foundation of the cathedral of Santiago de Compostella, which probably modelled on S. Sernin at Toulouse a more developed basilican plan, with a transept projecting beyond the aisles and apses on the east side of it, became established as the national type, varied in a few of the more important later Gothic churches.

Romanesque and Gothic.

An admirable example of the Romanesque style, though dating from quite the close of the twelfth century, is the old cathedral or Se Ve Velha at Coimbra, with its austere fortress-like exterior almost unpierced by windows and crowned by battlements, and its long, dimly lit nave, culminating in the glory of an apse rich in carving and gilding; all the light comes from the high west window and two in the domical lantern at the intersection, which, externally, is still clothed with a mosaic of self-coloured tiles; internally the aisle walls retain the patterned tile lining which has been stripped from the piers.

The transition from Romanesque to Gothic has its finest example in Portugal—as it has in London—in a church of the Knights Templars. This circular, or, rather, polygonal, church at Thomar was built about 1165, and therefore probably earlier than the still fully round-arched cathedral at Coimbra.

The most important building of early pointed architecture in Portugal is contemporary with the last two. This to the great Cistercian Abbey Church of Alco-

baça, founded in 1165, and finished 1211, and begun at least by Frenchmen. In plan it is to a certain extent modelled on the mother church at Clairvaux, having a semi-circular aisled choir, with nine radiating chapels. But the rest of the church shows a wide departure from Northern practice. The Portuguese, left to themselves, were afraid of continuing the French vaulting system of the choir with its relatively slender piers and flying buttresses. They made the nave piers so excessive that they almost concealed the arches, and buttressed the main vault by carrying up the aisle vaults and thick outer walls to the same level. The interior of this huge nave was the largest in Portugal, and was once decorated with stall-work and other embellishments, but all this was systematically destroyed by Massina's soldiers in 1819, and its gaunt grey perspective now contrasts oddly with the faded colours and famished gildings of the fond Baroque decoration of the choir, which, however, provides a not unpleasant splash of colour amid the gloom.

The influence of Northern Gothic was for a long time very slight in Portugal, and the thirteenth century, which was such a splendid building age in Northern Europe, was almost barren there. Most of the earlier pointed buildings date only from the fourteenth century. To this period belong the many of the beautiful cloisters which offer one of the great charms of Portuguese churches.

Batalha.

Dom Pedro's son was the last of the legitimate Burgundian line, and the opening of the era of the House of Aviz which followed was signalled from the first by a successful struggle for national independence against the Spaniards. Dom John III., whose wife was a granddaughter of our Edward III., and one whose sons was to be distinguished as Prince Henry the Navigator, determined to commemorate the glories of the national history and of his house by the foundation of the splendid church and monastery, Sta. Maria da Victoria, on the spot where the battle of Aljubarrota began, and hence known as Batalha.

(To be concluded.)

THE CONDITIONS OF BUILDING AND ENGINEERING CONTRACTS.—XI.

Being an Explanation of the Clauses of the General Conditions of Specifications and the Legal Decisions affecting them.

SPECIALLY CONTRIBUTED BY E. J. RIMMER, M.Eng., B.Sc., A.M.Inst.C.E., of Lincoln's Inn and the Northern Circuit, Barrister-at-Law, and KENNETH G. THOMAS, B.A., LL.B. (Cantab.).

(Continued from page 519, No. 987.)

Parentetical numbers in the text refer to cases noted at the end of each section.

(B) MATTERS WHICH ARE THE SUBJECT OF ARBITRATION.

These will depend entirely upon the terms of the arbitration clause. It will usually make provision for the determination of "all disputes arising" between the parties to the contract as to any matter in any way "connected with or arising out of the contract *not otherwise provided for in the foregoing clauses*," or words to that effect. The words in italics refer to those matters in regard to which the engineer or architect has been given a sole discretion by the preceding clauses, and they will preserve his power to deal with the matters summarily. (See the preceding chapters dealing with the engineer's powers in regard to additions, value and measurement of work, penalties, forfeiture, and final certificate.)

It remains, therefore, to consider the interpretation of the words, "all disputes arising as to any matter in any way connected with or arising out of the contract." These words, which may be onerous upon the contractor, will be construed most strictly by the Court. The words "all disputes" cannot mean disputes that have no relation to the contract at all, but in one case (82) Lord Esher interpreted them to mean all disputes that may arise between the parties "in consequence of the contract having been entered into." This expression, however, may be, it appears, subject to considerable modification. It has been held that an arbitration clause of this kind does not cover disputes arising out of the alleged interference with the proper carrying out of the work by the building owner or engineer by:—

- (a) Wrongful forfeiture.
- (b) Wrongful or unreasonable suspension of the work.
- (c) Delay in supplying plans or setting out the work.
- (d) Preventing the contractor from having access to the site.
- (e) Unreasonable notice of forfeiture.

Further, the usual submission to arbitration will not include the decision as to whether a certain right of action by either party has arisen. But, on the other hand, the clause has been held to cover disputes as to the amount of liquidated damages due from the contractor.

Questions of Law.—The fact that for the determination of the matter some question of law requires to be decided is not sufficient reason for one party to refuse to go to arbitration. It is true that the Courts reserve their inherent right to decide questions of law, but this does not prohibit arbitration, the power of the Courts being preserved by the right given in the Arbitration Act (*supra*) to call upon the arbitrator to "state a case" for the decision of the Court.

If the matter in dispute is one within the submission, either party may call upon the other side to go before the arbitrator for the determination of the dispute. If the other side refuses to recognise the jurisdiction of the arbitrator, and after due notice does not appear before him, the arbitrator may make his award upon an *ex parte* statement. This award may be sued upon as a liquidated amount and en-

forced by the machinery of the Court (*i.e.*, judgment, distraint, etc.). If, however, before arbitration has commenced, the contractor has taken action in the Courts, the proper course for the building owner is to make application under Section 4 of the Arbitration Act that the action be struck out and the matter referred to arbitration. If, instead, the building owner persists in arbitration and the engineer makes an award without the consent of the contractor, the Court will refuse to submit the matter to the arbitration of the engineer (80). See last week's issue.

(C) THE POWERS AND DUTIES OF THE ARBITRATOR.

It is usual to provide that the arbitrator shall not be required to hear and receive formal evidence, but that he may enter upon the subject matter of the dispute and determine the questions by his knowledge, skill, and judgment. Where the arbitrator is the engineer or architect engaged in the construction of the work, this provision will give him the power to settle the questions expeditiously. Many engineers under such provision summon a meeting for arbitration upon the site as each dispute arises, and in this way matters to be decided when the work is completed seldom arise. It must not be thought, however, that this provision entitles the arbitrator to refuse to hear what the contractor or building owner wishes to say. Whether he be engineer, architect, or independent arbitrator, he must be guided by principles of fair play and hear everything which may be material to the issue so as to enable him to decide the case impartially. For this reason a person other than the engineer or architect cannot well arbitrate without hearing formal evidence.

In addition to the special powers given to the arbitrator by the contract, he has certain powers under the Arbitration Act, 1889. Section 7 gives him power (a) to administer oaths to and take the affirmations of, the parties and witnesses appearing; (b) to state an award, as to the whole or part thereof, in the form of a special case for the opinion of the Court; (c) to correct in an award any clerical mistake or error arising from any accidental slip or omission. Section 19 enacts that "Any referee, arbitrator, or umpire may, at any stage of the proceedings under a reference, and shall, if so directed by the Court or a judge, state in the form of a special case for the opinion of the Court, any question of law arising in the course of the reference."

Stating a Special Case.

A special case stated by an arbitrator is a statement of the facts sufficient to enable the Court to determine the question of law involved. Sections 7 and 19 make provision for the proper determination of any question of law. An arbitrator ought, of course, to decide all matters in dispute according to the law, and if he is in doubt he has by these sections two courses open to him. He may either during the arbitration "state a case" (that is, set out in writing the point to be determined) for the consideration of the Court, or he may make his award contingent upon the find-

ings of law by the Court upon the special case which he states to them. In either case the parties to the arbitration may appear before the Court upon its consideration of the case and argue the question of law.

Section 19, moreover, gives the Court or judge power to order the arbitrator to state a special case upon the application of either party. This power only exists before the award is made.

(D) SETTING ASIDE AN AWARD.

As has been observed, the arbitrator must conduct the arbitration on lines of fairness to both parties, otherwise he may be removed and his award set aside. The Arbitration Act, 1889, Section 11 enacts: "(1) Where an arbitrator or umpire has misconducted himself the Court may remove him; (2) where an arbitrator or umpire has misconducted himself, or an arbitration or award has been improperly procured, the Court may set the award aside."

An arbitrator misconducts himself within this section in the following cases:—

(a) If he has without the knowledge of one party to the arbitration an interest in the subject matter in dispute.

(b) If he refuses upon a *bona-fide* application by one party to state a case, or to delay his award until the party can apply to the Court for an order directing a special case. If, on the other hand, the application for a special case is frivolous, and is made merely for delay, the arbitrator will be perfectly right to refuse it and will be upheld by the Court in so doing (83).

(c) If he takes information from one side in the absence of the other (84).

(d) If he intentionally decide a case contrary to law (85).

The Court will also set aside an award if, on the face of it, there appears an error of law (86). It will not, however, enquire into the manner in which the arbitrator has arrived at his decision, so that if any party raises a point of law for the decision of the arbitrator he must either accept his ruling or ask him to state a special case (*supra*) before the award is made.

An award must be certain, final, consistent, and extend to all matters referred to arbitration. If it fails in any of these respects the Court will (on application to it) send it back to the arbitrator in order that he may remedy the defect, but will rarely set the award aside on any of these grounds.

An award is valid until it is set aside, so that the proper procedure to set aside is an application by motion to the Court.

Cases referred to in the Text:

(82.) *Hohensollern, etc., v. City of London Corporation*: (1886) 2 H.R.C. 96.

(83.) *Re Palmer and Hosken and Others*. (1897) 77 L.T. 350.

(84.) *Gregson v. Armstrong*: (1894) 70 L.T. 106.—In an arbitration between a landlord and a tenant the arbitrators, after hearing the evidence, met upon the farm for the purpose of viewing it and held a conference at which the tenant was present, but of which no notice had been sent to the landlord. *Held*: That as the arbitrators had received information from one party in the absence of the other, without notice to that other, the award must be set aside.

(85.) *The Darlington Wagon and Engineering Co. v. Harding*: (1890) 7 T.L.R. 106.

(85.) *Landauer v. Asser*: (1905) 53 W.R. 534.

SPECIAL LEGAL REPORTS.

No Action Against Unincorporated Aggregate of Persons.

Walker v. Sur.

November 9. Court of Appeal. Before Lords Justices Vaughan Williams, Buckley, and Kennedy.

This was the appeal of the defendants in the action of *Walker v. Sur*, from an order of Mr. Justice Bucknill. The plaintiff, Mr. Charles Walker, an architect at Newcastle-on-Tyne, is bringing an action against J. Marin Sur, Joseph Gaeth, and Augustus Mitzler, of the Hospital of St. John of God, of Scorton, Yorkshire, and Pacome Hughes, who are sued on their own behalf and on behalf of all other members of the Brotherhood for £500 for professional services rendered, work and labour done, and money expended on behalf of the defendants as their architect.

Mr. Spokes, for the appellants, said they appealed against an order of Mr. Justice Bucknill, which was to the effect that the four defendants should defend the action on behalf of or for the benefit of all persons interested, the plaintiff undertaking, in the event of obtaining judgment, not to take any proceedings upon it out of the jurisdiction. The writ not only purported to sue the four persons but all other members of the Brotherhood, who were about 1,800 in number and were scattered over Italy, France, Spain, Germany, and other parts of the world. That, he submitted, was the wrong order for the judge to make and could not be made under the rule which it had—Order 16, Rule 9. When the matter was before Master Archibald he was asked for a representation order that the four defendants named on the record should be ordered to defend for all the Brotherhood, but he refused to make that order, saying they were out of the jurisdiction and there had been no attempt to serve a copy of the writ on any of them. He offered the other side a representation order as to all the members in England. Then Mr. Justice Bucknill was appealed to and he made the order complained of. This being a debt, he contended that the writ must be served upon every defendant against whom it was intended to ask for judgment. They could not seize a man's goods under a writ of *fi. fa.* unless he had been served with a writ. In the authorities—the club cases—the people sued had been served individually, but there had been no representation order made. The centre of government of the Brotherhood was in Rome, where there were a Superior General and a General Council.

Mr. Lowenthal, for the respondent, said the plaintiff contended that no member of the Brotherhood—at any rate the majority—possessed individual property, and that no individual member would ever think of contracting, on his own behalf, any debt. What was done by the plaintiff was done for the Brotherhood. The orders were given orally by the defendants on behalf of the Brotherhood.

Mr. Spokes denied that, and said there were no letters containing any such suggestion. The defendants had no interest here. In the words of the Act "it is not an interest but a burden."

Counsel went on to say that the Court had no jurisdiction over a foreign society or a foreign membership.

Lord Justice Vaughan Williams said in his opinion the order was wrong. Such an order could not be made under the Rule against an unincorporated aggregate of persons. Therefore the order should be

discharged and the appeal allowed with costs.

Lord Justice Buckley concurred. What the order meant was that if judgment were obtained against the four defendants on the property in Yorkshire they would only obtain what was each man's individual share. That showed the defendants were not representative of the Brotherhood.

Lord Justice Kennedy agreed.

Building Contract: Motion to Set Aside Award.

Trollope and Colls, Ltd., v. Singer.

December 9. King's Bench Division. Before Justices Bray and Lush.

This was a motion by the defendant, Mr. W. G. M. Singer, of Norman Court, near Salisbury, to set aside an award in favour of the plaintiffs, Messrs. Trollope and Colls, Ltd., builders and contractors, on a contract to carry out extensive alterations to Norman Court, the country seat of Mr. Singer. (See our issue of November 26th, p. 491, and December 10th, p. 526.)

M. A. A. Hudson, K.C., for the plaintiffs, said the matter had been before Mr. Justice Channell last week, who gave judgment for the plaintiffs, with costs, on their claim for some £1,400 over and above the contract price for work of some £9,000.

Mr. Todd argued the question for Mr. Singer, and submitted that the arbitrator had wrongly taken into consideration interference by Mr. Singer and his electrical engineer, these things not having been included in the notice of dispute of the difference as a matter of claim.

Mr. Justice Bray, in dismissing the appeal with costs against Mr. Singer, said he would assume that these things had been taken into account by the arbitrators and had they not been included in the notice Mr. Todd would have been right, but he was of opinion that they were included in the schedule to the notice, and therefore in his view the defendant had failed to prove excess of jurisdiction.

Judgment was given accordingly for Messrs. Trollope and Colls, Ltd.

EXCAVATIONS AT OSTIA.

Professor Dante Vaglieri, who is in charge of the excavations at Ostia, has given an account of the work which he has done there since June 1st. He has availed himself of the low state of the Tiber, which flows past the ruins, to excavate the subsoil in front of the four small temples. These explorations have brought to light one very important survival of the Ostia of the Third Century B.C. On the site of the Forum and on the east side of the temple of Vulcan the remains of shops, constructed of tufa, have been found, and at a still lower level other shops of the oldest town of Ostia on this site (for the original Ostia of Ancus Martius was in the salt-marsh near the mediæval castle) have been detected. The wooden pavement of these buildings may be inferred from the charred remains of beams which are still visible. Professor Vaglieri argues from this discovery that the shops which once stood in the Forum at Rome, such as the butcher's stall mentioned in the story of Virginius and Appius Claudius, were also of wood and of similar construction. Professor Vaglieri is at present excavating a large building, also in the Forum of Ostia, which he hopes may prove to be the Basilica.

HISTORIC ARCHITECTURE IN LONDON.

The buildings of London, compared with those of other historic cities, was the subject of a lecture by Mr. Allen S. Walker to the Historic London Club last week. He said that the four great cities in England—Canterbury, York, Winchester, and London—originated from their geographical position, which was near rivers that afforded means of defence. The reason why the Romans did not make London their capital was because Canterbury defended the south-eastern portion of the country, Winchester defended the south coast, Colchester was able to secure the safety of the Essex shores, and the strongest fortification and military forces had to be at York in order to deal with the unruly tribes of the North. It became convenient for the Emperor to be at York when he was in Britain, and so York became the capital, leaving London to develop as the fiscal or commercial port, with roads running therefrom to all parts of the country, along which the food supply of the troops could pass. York claimed to be the second Rome and London was simply a busy port. Almost any city then was better architecturally than London, and many of them exhibited specimens of that art to-day, but Roman London lay twenty feet below the surface.

London had very few Saxon remains. The Tower of London was Norman; it had a splendid history as a mediæval fortress, but what was it in fearlessness compared with the great ruined castle of Rochester? When one looked at the quiet domesticity of the Tower, as civilised by Wren, one would think that all the sternness expected in such an example of mediæval architecture had been lost. One found something between a castle and an Elizabethan country seat. Even the dungeons had become tame by the admission of daylight.

What had London lost ecclesiastically? The interior of old St. Paul's would not compare with the interior of Durham, but London had a magnificent example of Twelfth Century Norman work in the Church of St. Bartholomew-the-Great, and with that and the Temple Church it could hold its own in Norman work with other cities. In mediæval times the houses in England were small in character, and when the people had the wealth for erecting gorgeous buildings they had lost the necessary taste. That was the tragedy of England. London was of considerable size, but with the exception of the cathedral it consisted of low houses behind grey walls. If Westminster Abbey had been finished, as originally intended, with a central tower and spire, it would have rivalled Cologne Cathedral in height, but they were bound to admit that nothing approached to the sublime beauty of its interior. The lecturer compared the humble character of the streets and houses in London and York with those in cities abroad, and said that even Canterbury, with its cathedral, had only little domestic buildings that might be found in any market town. He hoped that if Cloth Fair, which was threatened, should ever be pulled down an effort would be made to save the Dick Whittington, the oldest inn in the City. London was at a disadvantage inasmuch as no portion stood on a hill, and few were able to gauge the magnificence of its buildings; it lay low in their midst, chiefly represented by the genius of Christopher Wren, who built a Renaissance city after the Great Fire.

COMPETITIONS.

St. Paul's Bridge.

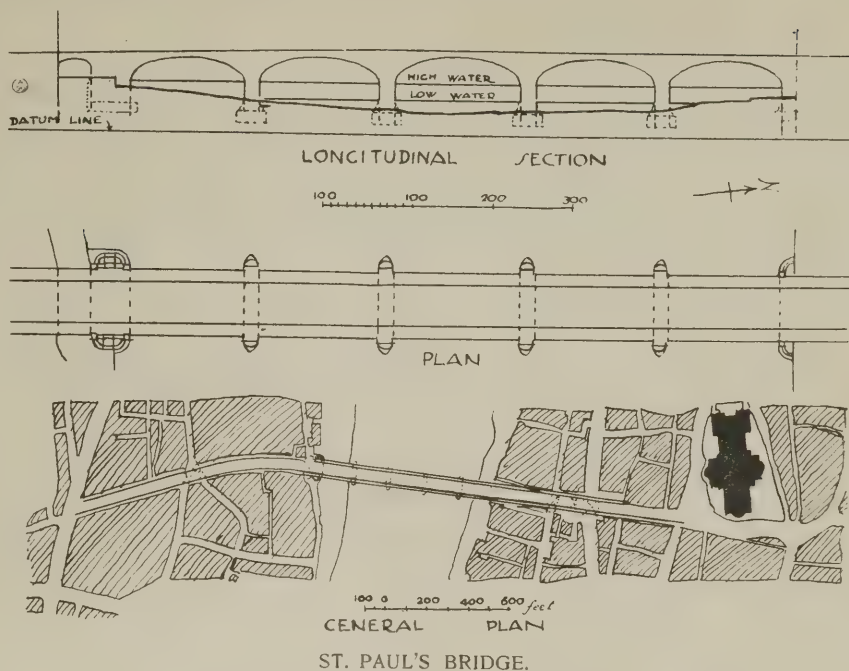
The following is a summary of the conditions of the above competition. Designs are invited from British architects for the architectural treatment of St. Paul's Bridge in masonry and other works. Sir William Emerson, P.P.R.I.B.A., has been appointed assessor. Premiums of £300, £200, and £100 will be awarded. Winner of design placed first will be appointed architect, unless his scheme proves too costly. If the work be not proceeded with within twelve months from the notice to prepare working drawings, the architect will receive the sum of £400, which sum will later merge into his commission. Messrs. Mott and Hay will be responsible for the engineering portion of the construction, foundations, etc. Quantities will be taken out by a surveyor appointed by the committee.

GENERAL REQUIREMENTS.

The committee desire to obtain the finest architectural design at reasonable expenditure: (1) For architectural treatment of the bridge itself; (2) for the approaches and staircases on the south side of the river and the abutments and wing walls on the north side of the river; (3) for the bridge access stairways and adjuncts over Queen Victoria Street; (4) for the bridge over Upper Thames Street. The junction between the northern approach road and Cannon Street at St. Paul's Churchyard is not to be dealt with in this competition. The staircases and abutments on the south side of the river should be considered with a view to a possible future embankment of the south bank of the Thames. The committee are not prepared to consider the possibility of a future embankment on the north side of the river. Competitors are not asked to deal with any property between the river and Cannon Street, except at points indicated on the plan.

DRAWINGS.

To a scale of 16 ft. to the inch: (a) Plans, elevations, and sections of the bridge and its piers and abutments with approach from Bankside and staircases from lower to higher level on the south side of the river, considered with a view to a possible future embankment. (b) The abutment and wing walls on the north side. The parts indicated on the plan adjoining these wing walls can be utilised to form a handsome approach to the bridge on its northern side. It is contemplated that on the space below the road level of the approach road at these points, buildings may be provided as business premises, the upper part to be treated as competitors think best. To a scale of 8 ft. to the inch: (a) The elevation of masonry bridge over Upper Thames Street. (b) Plan, elevation, and section showing parapets, etc., of the steel bridge over Queen Victoria Street, with four wing buildings to contain staircases from the lower to the upper level on opposite sides of the street, with an entrance also to staircase, if possible, from Lambeth Hill. The outline of the steel-work is supplied by the engineers. $\frac{1}{4}$ -in. scale details are required of the following: (a) Detail of half the centre arch of bridge over the river and part of the side adjoining arch with pier. (b) Detail of abutment on north side of river and flank walls. (c) The staircase and enclosures and approaches from the lower to higher level on Bankside. *Perspective sketches* as follows: (a) Part of the centre and part of the side arches of the bridge, showing piers, etc. (b) Bridge over Queen Victoria



Street with staircase buildings. (c) Staircase and enclosures on Bankside as viewed from the river.

Questions relating to the conditions should be received by the Town Clerk, Guildhall, E.C., not later than December 31st, 1913. The designs, accompanied by a short descriptive report and specifications of materials, must be delivered on May 4th, 1914.

School for Defective Children, near Durham.

The Education Department of the Durham County Council invite designs for a school for defective children at Glake Hall. The Education Committee will assess the competition. Author of selected design will be appointed as architect. Premiums of £20 and £10 will be paid to authors of designs placed respectively second and third.

ACCOMMODATION.

The full scheme provides for 250 scholars in four homes, accommodating about sixty each. Only two of these homes are included in the present scheme, but position suggested for the additional two homes must be indicated upon the block plan of site and marked "Future extension." Author of design accepted for the portion of scheme first to be proceeded with will not necessarily be employed to carry out future extensions. The present scheme is to provide for 128 pupils, as follows:—(1) *Boarding and Residence of Pupils.* Two homes for two separate sets of thirty-two children, so as to accommodate sixty-four children of one sex or thirty-two children of each sex; they should contain:—Matron's sitting-room and staff-room (to be used also as staff dining-room); kitchen, with pantry, etc.; matron's bedroom, lavatory, w.c., and bathroom for staff; lavatory and bathroom accommodation for sixty scholars—say, three baths and two w.c.'s for each wing; bedroom accommodation for (say) four household servants; dining-room (to be used also as recreation and play-room) for thirty-two scholars—to have sunny aspect and easy access to open air; wardrobe accommodation for whole of scholars' clothes; two dormitories for sixteen scholars, of hospital ward type with windows on each side, and a bedroom for a member of staff overlooking each dormitory; each dormitory to contain about 50 sq. ft. of floor space and 600 ft. of air

space per scholar; sick room with bath-room and w.c. adjoining; hat and cloak-room accommodation near scholars' entrances. Usual out-offices, with latrines, storage for wood, coal, etc. Question of providing accommodation in a building of one or two storeys to be carefully considered. *School Accommodation.*—Separate building containing eight classrooms, including (say) three rooms for manual occupations. Two or three of these should be divided by a sliding glazed screen, so as to form a hall when required. Rooms to be arranged as far as possible in pavilion system, the south or west side of each room to be removable at will. Each classroom should contain about 300 sq. ft. of floor area (say) approximately 18 ft. by 17 ft. *Residential Accommodation for Staff.*—(1) House for superintendent; cost of this to be estimated separately. (ii.) House for headmaster. *Office of Superintendent*,—with small dispensary attached. *Laundry.* *Observation Block.*—For isolation cases, etc.; for this the building at Earl's Home, providing five beds with nurses' room and caretakers' cottages will be available, but will need enlargement, so as to provide for both sexes separately. The sum of £500 to be allowed in estimate for this purpose.

DRAWINGS.

(a) Block site plan, 32 ft. to 1 inch, showing lay-out, playgrounds, and drains. (b) Plan of each floor, 16 ft. to 1 inch, showing internal fittings and fireplaces. (c) Two sections and elevations of each separate building, 16 ft. to 1 inch. Drawings to be accompanied by general descriptions, with information regarding sanitary appliances, heating, and ventilation. A short specification of materials and an estimate of cost of work. Designs to be delivered to the Clerk of the Education Committee, Shire Hall, Durham, not later than January 31st, 1914.

Members and Licentiatees of the R.I.B.A. are advised that the conditions of the foregoing competition are not in accordance with the Institute regulations. The Competitions Committee are in correspondence with the promoters with a view to their amendment.

The Society of Architects advises its members not to take part in the above competition, the conditions being in certain respects unsatisfactory.

Board of Trade Offices: New Assessor.

Mr. Ernest Newton, A.R.A., has been appointed in the place of the late Mr. John Belcher, R.A., as one of the assessors in the competition for new offices for the Board of Trade.

Coventry Technical Institute.

The conditions of the above competition are not in accordance with the R.I.B.A. regulations, and the Competitions Committee are in communication with the promoters with a view to their amendment.

King Edward VII. Memorial Sanatorium, North Wales.

Architects who have submitted designs in the above competition are requested to send their names and addresses to Sykes and Glasier, solicitors, Newport, Mon.

Rutherford College, Newcastle.

Mr. W. H. Knowles, F.S.A., of Collingwood Street, Newcastle, has been awarded the prize in the competition for the extension of the above building. Mr. T. Edwin Cooper, F.R.I.B.A., was the assessor.

Doncaster, Morley Road, U.M. Church and Schools.

In the competition recently held for the above buildings the designs submitted by Messrs. George Baines and Son, 5, Clements Inn, Strand, London, were awarded first place. The portion of the scheme at present to be erected is estimated to cost about £4,500.

New Offices for the Metropolitan Water Board.

Last Friday, the Metropolitan Water Board decided to build its new offices on its own land in Rosebery Avenue, and to select six architects to submit competitive plans. A professional assessor is to be appointed to advise on the conditions and on the designs. The site is about $7\frac{1}{4}$ acres, and the cost of the buildings is not to exceed £80,000. For editorial comment, see p. 531.

PROJECTED NEW WORKS.

Picture Theatre, Winchester.

Winchester T.C. have approved plans for the erection of a picture and variety theatre in Jewry Street.

New Bridge Over the Clyde.

A proposal to erect a bridge over the Clyde at Oswald Street, has been adopted by Glasgow Corporation.

Church, Edenbridge, Kent.

The erection of a new church at Marsh Green, Edenbridge, at an estimated cost of £2,000, is under consideration.

Workhouse Additions, Wrexham.

Wrexham Board of Guardians have adopted a scheme, estimated to cost £1,625, for the erection of additions to the workhouse.

Cottages, Braintree.

Braintree R.D.C. have decided to erect six cottages at High Garrett, Bocking, at a cost of £160 each, and six other cottages at Black Notley at a cost of £150 each.

Grain Silos, Glasgow.

Plans have been prepared for erection of grain silos and quay additions and alterations at Springburn Quay, Glasgow, by Messrs. Thorne, Morton, Kerr, and Gibson, Architects, Glasgow, for the Riverside Milling, Co., Ltd.

Council Offices, Bedwas.

An inquiry by the L.G.B. has been held into the application of the U.D.C. of Bedwas and Machen to borrow £3,132 for the erection of council offices, fire station, etc.

Weights and Measures Office, Birmingham.

Birmingham T.C. propose to apply to the L.G.B. for sanction to a loan of £3,563, for the erection of a new weights and measures office.

Club House, Shirley Park, Surrey.

A club-house is to be erected for the Shirley Park Golf Club, the architects being Messrs. Tubbs, Messer, and Poulter, of Woking. The building will cover an acre of ground, and is estimated to cost £8,000.

Works, Devon.

Devon County Council are proposing to spend £18,000 on a sanatorium scheme at Hawkmoor, and £2,300 and £360 respectively on the rebuilding of Culmstock and Affeton Mill Bridges.

Bank Extension, London.

Messrs. Barclay and Co., Ltd., bankers, have acquired extensive premises in Lombard Street (46, 47, and 48) on the site of which an extension of the central establishment is to be erected.

Shed Accommodation, Liverpool Docks.

Mersey Docks and Harbour Board propose to increase the shed and other accommodation on the west side of the Nelson Dock, and at the north end of the west side of the Bramley Moore Dock, at a total estimated cost of £10,280.

Hall and Offices for British Columbian Government.

On the site at the corner of Charles Street and Regent Street, formerly occupied by the Hotel Continental, the British Columbian Government propose to erect a new building, comprising exhibition hall and offices. Mr. Alfred Burr, F.R.I.B.A., is the architect.

Various Works, Ulverston.

An inquiry by the L.G.B. has been held at Ulverston into an application of the U.D.C. for sanction to borrow £1,100 for the gas undertaking, £3,000 towards the cost of the erection of a Coronation Memorial Hall, and £2,890 for the widening and general improvement of the road leading from Ulverston to Conishead Priory.

Various Buildings, Glasgow.

Glasgow Dean of Guild Court have approved the following plans:—North British Locomotive Company, Ltd. (flanging shop and material store in Blenheim Street). Smith and Leishman, Woodville, Govan (timber sheds, 41, Whitefield Road, Govan). Alexander Anderson (building for workshop in Abbot Street, Shawlands). North British Diesel Engine Works, Ltd. (pattern shop and store at White). Frederick Braby and Co., Ltd., Eclipse Works, Hobden Street (buildings for new rolling mill plant in Petershill Road, and extension to existing tinsmiths' shop in Petershill Road). G. and J. Weir, Holm Foundry, Cathcart (factory at Cathcart). Scottish Picture Houses, Ltd. (picture house on the north side of Gourlay Street, Springburn).

London.

The L.C.C. have consented to the erection of the following works:—

Kensington.—Addition and a conservatory at 115, Cambridge Gardens, Kensington, on application of Mr. G. H. Sothcott.

Lewisham.—One-storey shop in front

of 121, Stanstead Road, Forest Hill, on the application of Messrs. Blaxill Brothers.

Marylebone.—Projecting columns and a cornice at 50, Berners Street, Oxford Street, on the application of Mr. John Slater, on behalf of the Carron Company.

Rotherhithe.—Buildings in Oxley Street, Bermondsey, on the application of Mr. J. W. Start, on behalf of Mr. C. W. Parker.

Haggerston.—Additions at the premises of Messrs. T. E. Carwardine and Co. Kingsland Road, Pearson Street and Elizabeth Place, Shoreditch, on the application of Mr. J. Farrer.

City.—Buildings on the western side of Bishopsgate, next to Pindar Street and Primrose Street, on the application of Mr. S. H. Burdwood.

Chelsea.—Additional cubical extent in extension of Block 1 of the premises of Harvey, Nichols, and Co., Ltd., Knightsbridge, on the application of Mr. F. E. Williams.

Fulham.—Additional cubical extent in respect of an addition to abut upon Imperial Road at the Imperial Biscuit Works, Townmead Road, Fulham, on the application of Messrs. J. M. Monro and Son, on behalf of Macfarlane, Lang, and Co., Ltd.

Paddington.—An iron and glass shelter at the entrance to the Paddington Town Hall, Harrow Road, Paddington, on the application of Mr. E. B. B. Newton, on behalf of the Paddington Metropolitan Borough Council.

St. George, Hanover Square.—Refacing of the ground storey of 43, Upper Grosvenor Street, W., on the application of Mr. G. A. Codd, on behalf of Mrs. Clark.

Wandsworth.—An addition to a motor garage at 42, Upper Richmond Road, Putney, on the application of Mr. R. P. Grant, on behalf of Dr. E. Miller.

Holborn.—Buildings upon the site of 3, 5, 6, 7, 8, 9, and 10, Dorington Street, Holborn, on the application of Mr. A. C. Thompson, on behalf of the Prudential Assurance Company, Ltd.

Peckham.—Addition to the premises of Messrs. S. Jones and Co., on the northern side of Diamond Street, Camberwell, on the application of Messrs. H. King and Son.

Whitechapel.—An addition to St. Anne's Roman Catholic School, on the northern side of Buxton Street, Bethnal Green, on the application of Mr. P. E. Culverhouse.

Rotherhithe.—Four gangways over the eastern end of Pickle Herring Street, Rotherhithe, on the applications of Messrs. Stock, Page, and Stock.

Battersea.—Additional cubical extent in respect of alterations at the London General Omnibus Company's garage, Wellington Road, Battersea, on the application of Mr. J. E. Ashby.

Bow and Bromley.—Additional cubical extent at the premises of Spratt's Patent, Ltd., Fawe Street, Poplar, so far as relates to the erection of two loading stages, on the application of Mr. Max Clarke.

Newington, West.—Addition at the electricity generating station, Penrose Street, Walworth, on the application of Mr. A. Harrison, on behalf of the Southwark Borough Council. An additional cooling tower at the electricity generating station, Penrose Street, Walworth, on the application of Mr. D. N. Kinghorn, on behalf of the Southwark Borough Council.

Westminster.—Addition at the rear of 85, Vincent Square, Westminster, next to New Street, on the application of Messrs. Elms and Jupp, on behalf of Lord Montagu of Beaulieu.

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Town-Planning Competitions.

THE competition which has recently been held by the Corporation of Bradford for the development of an estate of 50 acres on which 600 houses were placed suggests some reflections on the principles of town-planning and also upon the manner in which town-planning competitions are conducted. As a great amount of labour is involved in the design of several types of cottages for an estate, and as this labour is utterly wasted if the general lay-out and disposition of the roads is deemed by the assessor to be erroneous, it were desirable if a preliminary test were first imposed so that those candidates could be weeded out who had failed to grasp the essentials of the problem. Such an arrangement would make competitions vastly more popular, especially among those architects of assured reputation who do not care to employ much time upon work which may be fruitless. It would also be a great stimulus to the development of the theory of town-planning, for this latter would then have to be judged by itself apart from all extraneous considerations such as the design, accommodation, and cost of a multiplicity of small houses; these latter could be quite sufficiently represented on block plan. Moreover, the results of the preliminary competition might very well be printed and made the subject of public discussion.

No real advance in civic design can ever be made until we have arrived at certain definite conclusions upon its main principles, conclusions set out in such indisputable terms that they are a matter of general agreement. The taste and idiosyncrasy of the artist are of little importance here, for we are dealing with the affairs of society which have their own peculiar regulations, and, however difficult it may be to determine æsthetic canons, we are all obliged to assume that such canons exist; otherwise we are without object or purpose and quite destitute of vitality, like logs of wood that drift along a stream. It is not often that writers in *THE ARCHITECTS' AND BUILDERS' JOURNAL* are able to agree with any opinion that is expressed by Mr. March Phillipps, but when such a happy opportunity occurs it must not be neglected. In the current issue of the "English Review" Mr. Phillipps has much praise for our eighteenth-century forefathers, whose great achievements in art and letters he attributes to the discipline and the measure of self-abnegation they imposed upon themselves; and with the polished prose of Dr. Johnson and Jane Austen he contrasts the slovenly diction of our modern novelists, who are the product of a more emotional age. "Apart from painters," he says, "there is such a thing in the eighteenth century as painting, a mode of expression with its own laws and authority; and apart from talkers there is such a thing as conversation, another mode of expression equally endowed with laws and an authority of its own."

This is the highest eulogy, and it applies not only to the particular time to which Mr. Phillipps refers but to all those periods of history that have been especially

distinguished for noble attainment. Let it be said of our own age that, apart from town-planners, there was such a thing as "town-planning." For unless we can create something which has an identity of its own apart from that of its creators we shall leave no memorial behind us. The various schemes of city development for which we are responsible must exhibit a method and consistency that declare them to be the work of human agents.

When an inanimate object is expressive of some principle, it becomes to that extent a work of art, good or bad, according as the principle is correct or incorrect; but if no principle is displayed at all, then the object is the result of chance and utterly devoid of form. If in a number of instances of estate-planning we see the roads arranged in geometrical patterns that have no relation whatsoever to the slope of the ground, they give the impression of having been conceived by a narrow and mechanical mind which acquired a rule it was unable properly to apply. They would be preferable perhaps to a series where the roads were arranged without any evidence of a preconceived plan at all (for one may argue that even little brains are better than none), but these examples are inferior to a series which shows that a formal manner has been adopted where the ground is flat and a less formal one where the ground was undulating; for in the case of the latter one principle has been imposed upon another, with the result that the designer has attained both order and flexibility; moreover, the occasion for this flexibility is not left to chance, but is determined by conditions. It is the crude application of too elementary a principle that brings into disrepute not only formal planning but the employment of intellect at all upon matters of art. People often tell us that intellect is harsh and cold, and quite incompetent to deal with such delicate subjects, whereas, in reality, it is infinitely sensitive and the crudeness of a plan is never due to a surfeit of such a quality, but to the lack of it. There must be a complexity of principle displayed before one can endue with appropriate form such a complex organism as a city.

This question concerning the relation between the type of plan and the slope of the ground is only one out of many that must be considered. In the Bradford competition it may be noted that of the premiated designs it was only the third which showed an attempt to take into account the undulations of the site. Many people will hold that a regular pattern is altogether deprived of its virtue if it has to be placed on uneven land.

But when a formal lay-out of roads has once been chosen, it may be objected that very picturesque houses ill accord with such a scheme. Formal houses upon an informal plan are permissible because there is not so much reason then why each house should not be regarded as a complete and separate unit; when the road, however, is part of a geometrical pattern, and is, as it were, self-conscious, it sets the tone of the whole district through which it passes, so that a discord is set

up if the houses near it exhibit a great lack of discipline.

It would be of enormous advantage if these and similar questions were freely canvassed, for great progress will have been made in civic design when we have definite standards of criticism concerning them.

A. T. E.

Increment Value Duty.

SPENLOW and Jorkins, Codlin and Short, Jekyll and Hyde leap to the mind whenever any question arises as to increment duties. In answer to a communication addressed to the Chancellor of the Exchequer by the Birmingham Chamber of Commerce, asking whether under the Finance Act of 1910 it had been decided to levy increment value duty on buildings, fixed plant, and machinery as well as on land, a reply has been received stating that, in arriving at the assessable site value of land from the total value, the value attributable to buildings and to any other structures, including fixed plant or machinery connected therewith, was totally eliminated. "In the same way," the letter continued, "in ascertaining the site value on an occasion for collection of increment value duty, the like deductions covering any increase or recovery of value attributable to the buildings or machinery also fall to be made. It will therefore be seen that as increment value duty is chargeable by reference to any excess of site value on the occasion as calculated in accordance with the provisions of the law over the original site value, no charge can arise in respect of any enhancement of value of the kind to which you refer." A member of the Chamber, commenting on this pronouncement, said he had a strong idea that the way in which the Chancellor of the Exchequer had expressed himself in his letter was not the way in which the valuation for increment duty was carried out by the officials. His dubiety has considerable warrant in the legal decisions on the Lumsden case; and, unfortunately for the landowner, it is the law courts and the administrative officials, and not the Chancellor of the Exchequer, who control the situation, and the Chancellor's present bland assurances are to be read in the light of previous disillusionment.

The Mansion House.

AT the end of last week the Lord Mayor of London and his lady entered into residence at the Mansion House, which has been newly swept and garnished for their reception: that being about all that has happened to it, in spite of (or perhaps because of) all the talk about drastic structural alterations. The building is the more safe from extensive change because it is loved by the many rather than venerated by the few. Even those who deride it (and no building has been more constantly the butt of humour) would fiercely oppose any alteration which would change it into some less familiar shape, because it is a monument not merely of civic history, but of national and international amenity. And, on the whole, there is no need to blush for its architecture. If it is not beautiful, it is at least interesting; and it has worn very well, considering that the elder Dance began to build it in 1739; although it was not finished until 1753.

The Crystal Palace as Public Property.

NOT until last Thursday could it be announced with certainty that the Crystal Palace was saved to the public. It was then stated that Lord Plymouth had very generously agreed to sell the property to the public for about £30,000 less than the £230,000 for which he bought it. His lordship, who had already contributed £5,000 to the purchase fund, and had charged no interest on the large sum invested, thus loses far more heavily as a result of his public-spirited action that one likes to see. The purchase

fund has had a rather precarious history. When Lord Plymouth came to the rescue of the Palace by purchasing it in the public interest it was on the understanding that a Mansion House fund would be opened with the object of raising the money. By the end of June, however, this fund languished at £25,000; when, at the urgent request of the then Lord Mayor, Sir David Burnett, "The Times" took up the matter with such energy and success that £90,000 was raised in a fortnight. It was thought that there the matter ended, as it was understood that the rest of the money would be provided by certain local authorities, who, however, ignominiously backed out of their implied promises, leaving Sir David Burnett and Lord Plymouth in the lurch. With fine magnanimity, Lord Plymouth has relinquished his claim to about £30,000 of the money. The Crystal Palace, therefore, will be a monument to his munificence, long after the almost incredible meanness of Camberwell Borough Council has been forgotten. By the way, it should not be overlooked that the Palace houses an excellent series of architectural models, and that the "courts" containing them are designed to correspond to the various periods represented. These courts and models, if revised by competent architects in the light of present knowledge, should resume their originally very considerable educational value.

The Admiralty Arch Improvement.

A DRAFT of the Mall Approach (Improvement) Bill empowers the London County Council to effect a widening of Spring Gardens on the northern side between the centre line of the existing Mall Approach and a point one and a half chains or thereabouts westward thereof; a widening of the Mall Approach on the north-western side between Spring Gardens and Charing Cross; and a widening of Charing Cross on the southern side between the centre line of the existing Mall Approach and a point one and a half chains or thereabouts westward thereof. Thus, after protracted discussion and negotiation, we are brought to the point at which the building of the Admiralty Arch ought to have started. The whole affair is only too clearly characteristic of the English temperament and its fondness for muddling along upon short views and by devious ways, rather than for far-sighted policy, and orderly progression straight onward towards a pre-determined consummation.

Stone Preservation.

IT is strange that so many years of discussion and investigation have brought forward no satisfactory remedy for the decay of stonework. It had been supposed that baryta water was an effectual remedy; but at last week's meeting of the R.I.B.A., in course of the discussion on Mr. Forsyth's paper on "The Repair of Ancient Buildings," Mr. Lionel Earle, C.B., Permanent Secretary of H.M. Office of Works, did not confirm that impression. He said that the decay of stone by the action of the sulphuric acid in the atmosphere was giving his department much anxiety. Numerous experiments, he said, with baryta water and other ingredients had not yielded satisfactory results. Mr. Earle left us sorrowing but not without hope, for he made the very welcome announcement that he had persuaded the Treasury to give him a grant of money for a period of one, two, or three years, to institute a scientific inquiry, and he hoped to obtain the services of Professor Laurie, of the Heriot-Watt College, Edinburgh, with that object. He had also moved the Foreign Office to inquire officially of the Governments of France, Germany, Italy, Greece, and America whether any scientist in those countries had evolved any satisfactory method of treatment. Mr. Earle can soften stone, it would seem; and very heartily we wish him success in his determined and well-directed efforts to discover an effective means of preserving it.

THE PLATES.

Apartment House, Rue Grenelle, Paris.

THIS building, designed by M. Jacques Hermant, is a fair example of the modern Paris apartment house. It is perhaps somewhat more subdued than the large majority of buildings of this type; but what it lacks in vivacity it gains in dignity, this effect being enhanced by the predominance of strong vertical masses. The great height of the uninterrupted horizontal rustication gives the building a rather too pronounced appearance of being built in a succession of thin continuous layers. This defect might easily have been avoided by the introduction of vertical rustication, which is quite as necessary and logical as the horizontal treatment, though there appears to be a popular impression among architects to the contrary.

The Town Hall, St Albans.

Of the many small provincial towns that lie within a thirty-mile radius of London, none possesses more absorbing historic interest or artistic charm than St. Albans. Its mediæval buildings are part of the pageantry of past English history, and the Georgian residences, so characteristic of homeliness, represent the associations of life over a period of two hundred years. What, then, is left to be said for a "Greek" town hall, and one, moreover, that is partly built in cement? This is the question that excited considerable discussion in St. Albans a few months ago. Happily, those who would have demolished the building, and erected a terra-cotta structure in its place, have so far failed to achieve their object; and George Smith's town hall still stands to bear its testimony to an intensely interesting phase of English architectural development.

In the year 1829 (thanks to Telford's engineering), the stream of coaching traffic connecting London with the northern provinces reached a remarkable volume, and it was decided to rebuild the then existing Town Hall. The Corporation commissioned George Smith, a London architect, to prepare a design and to obtain estimates, and early in the year 1830 the building was completed at a cost of £6,991. That Smith succeeded in producing a design that does no violence to local character must be admitted by all who are familiar with St. Albans Market Place. Indeed, the building harmonises singularly well with its surroundings. The view that we give in this issue includes a number of the buildings in its immediate neighbourhood, the Abbey's rugged Norman tower showing in the distance.

House at Shepherd's Green, Chislehurst.

This house is erected on a site which allows of views at the back and front only. The elevations are of red mixed brick, with oak or elm boarding in the gables. The convenient arrangement of the rooms may be judged from the plan reproduced in the next column. The architect was Mr. E. J. May, F.R.I.B.A., and the builders were Messrs. T. Rider and Son, of Chislehurst and London.

Shop Front, Albemarle Street, London, W.

In the design of this front it is obvious that the architects were unhampered by the exacting conditions which are generally characteristic of this class of work. Here the demand was not for an extended window area, but for just sufficient space to display a few special pieces of furniture—indicative of the high-class character of the business conducted within. From the purely architectural standpoint the front is an undoubted success, the recessed surround to the entrance doors being sufficiently pronounced to provide a necessary contrast to the plain semi-circular-arched windows on either side. The balcony, too, unlike many modern examples, groups well with the general mass of the front. The keystones to the arches are admirable

specimens of modern craftsmanship. The architects were Messrs. Gale, Durlacher, and Emmett.

A Restoration of Khorsabad.

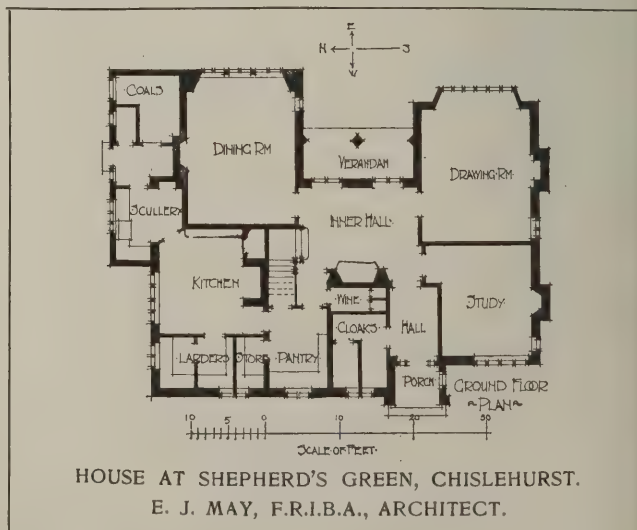
Mr. Conrade's restoration of Khorsabad is perhaps somewhat imaginary; it cannot be connected with any part of the plan uncovered by Place. The artist seems to have been prompted to some extent by Fergusson's restoration of the courtyard at Khorsabad, which is also very imaginative. It is believed that the apartments at Khorsabad were covered with crude brick vaulting, covered with surface decoration. The bull figures, placed at right angles to each other at the angles of the building, did exist in that position, but the rest of Mr. Conrade's admirable drawing is purely conjectural. The legs of the existing bull statues are rather more stiff and conventional in attitude than depicted by Mr. Conrade.

Complete Project for Palais de Justice, Place Dauphine, Paris.

It is not generally known that Duc's magnificent scheme for the Palais de Justice included the treatment of the Place Dauphine. The plate that we publish in this issue, showing the character of Duc's complete project, is therefore of very considerable interest. It will be seen that the part still unexecuted consisted of an irregular triangle of pavilion-like buildings, having a main axis in alignment with the familiar columned front, the interior forming a paved courtyard with statues and other decorative features.

Carved Oak Chimneypiece from an Old Building at Cambridge.

The following descriptive note is supplied by Mr. Ingleson C. Goodison: This imposing chimneypiece is the principal embellishment of a handsome room, about 30 ft. by 25 ft., completely wainscoted in oak, of the late Stuart-Orange (William III. and Mary) period—the panelling being typical heavy bolection-moulded framing, surmounted by an enrichment entablature, which extends round all sides. The flat jambs to the mantelpiece are of yellow-veined marble, and the central panel in the overmantel is of oak, forming the background upon which is hung an old framed portrait. The exceptionally fine carved enrichments throughout correspond very closely with the period of the panelling of this apartment (which is attested by documentary evidence), but the general composition of this chimneypiece alone would seem to indicate the transition towards greater delicacy, or lightness, which marks the culmination of this magnificent style during the reign of Queen Anne, and which persisted (especially in provincial centres) at the commencement of the Georgian era, until banished by the advent of the English Palladian school, when the practice of Inigo Jones, in seeking inspiration from Italy rather than from France and the Low Countries, was revived.





CURRENT ARCHITECTURE. XXXI.—APARTMENT HOUSE, RUE GRENELLE, PARIS.

JACQUES HERMANT, ARCHITECT.



EARLY NINETEENTH-CENTURY ARCHITECTURE, IV.—THE TOWN HALL, ST. ALBANS.

GEORGE SMITH, ARCHITECT.

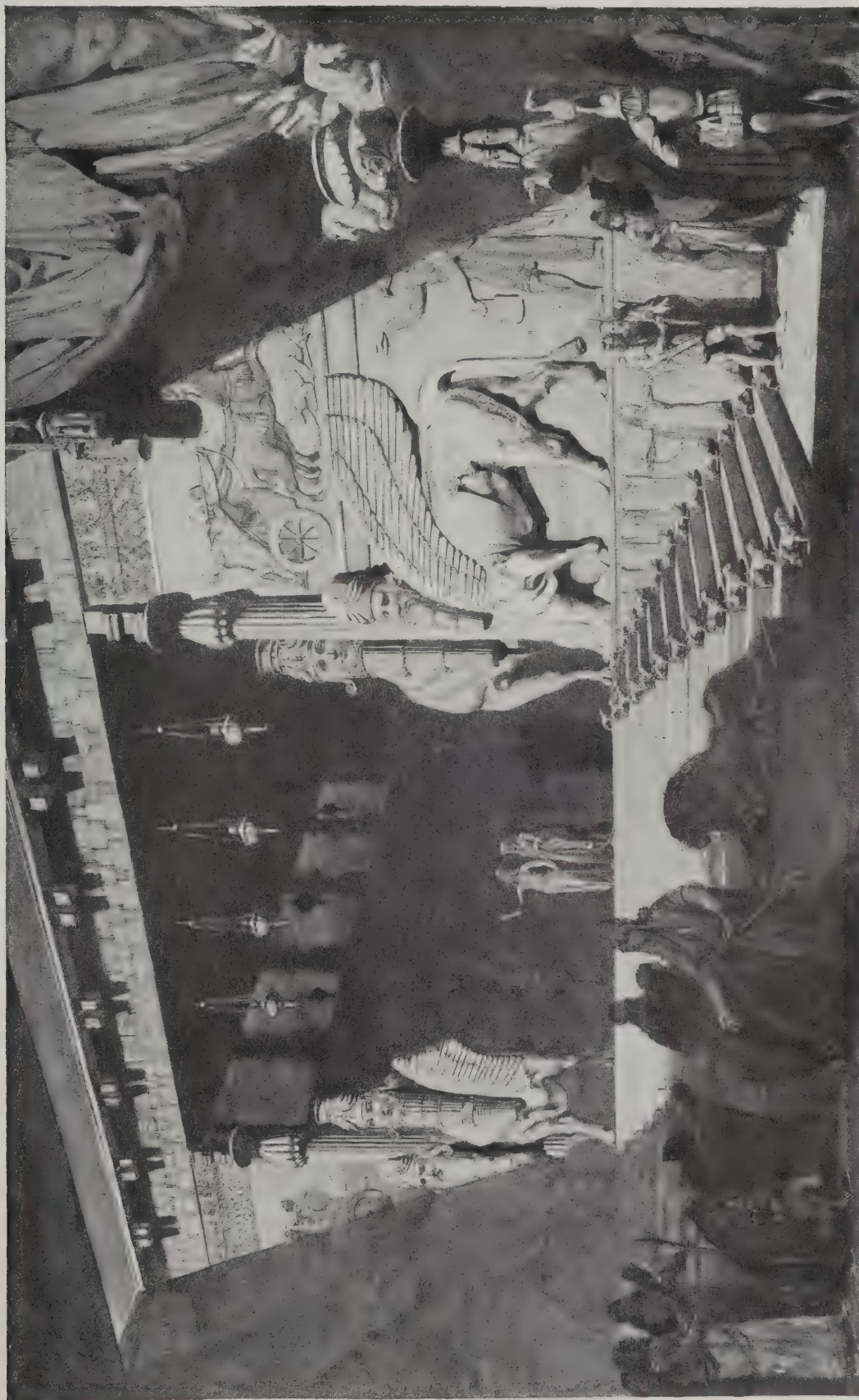


MODERN DOMESTIC ARCHITECTURE. XIV.—HOUSE AT SHEPHERD'S GREEN, CHISLEHURST: GARDEN FRONT.

E. J. MAY, F.R.I.B.A., ARCHITECT.

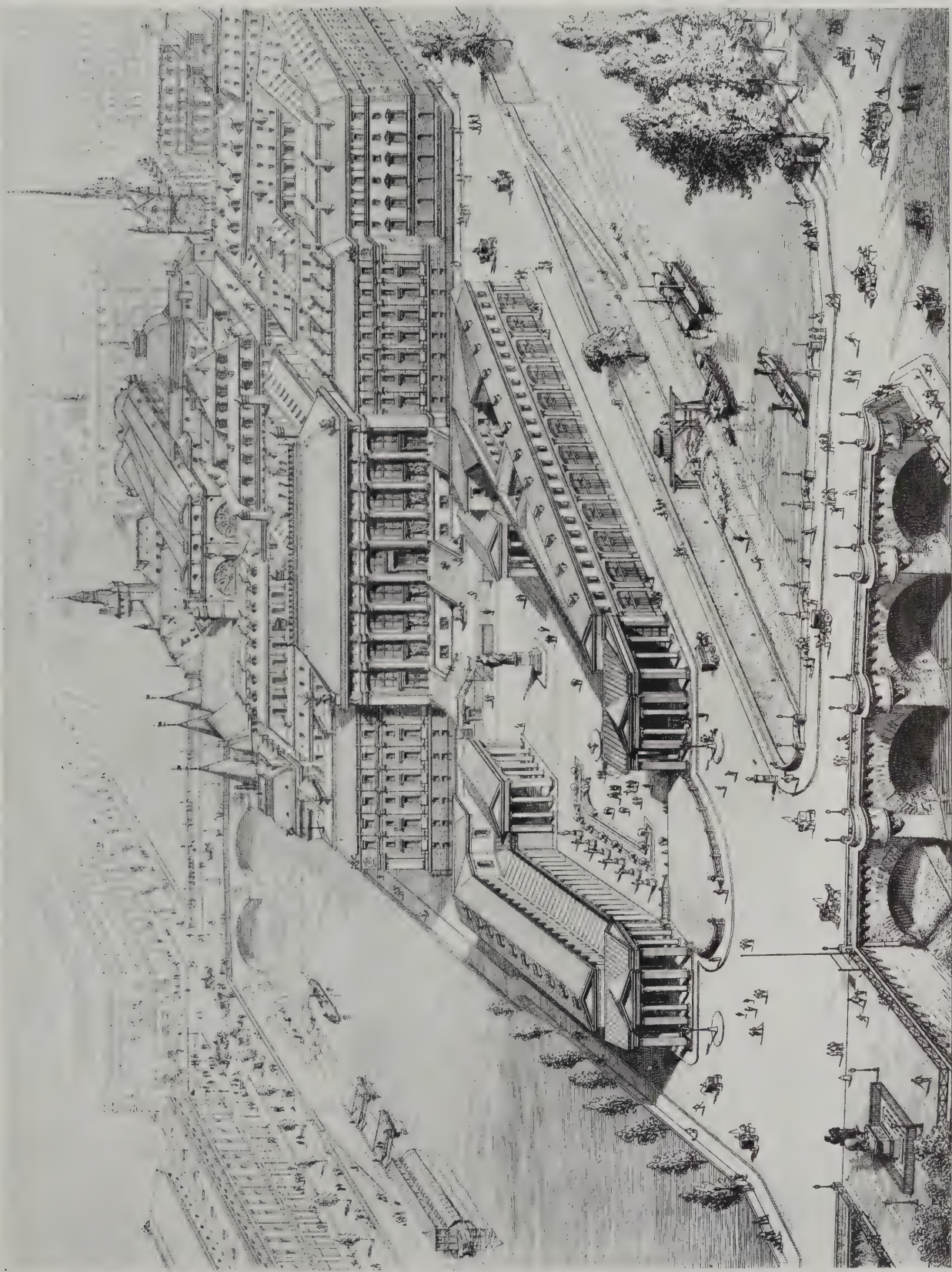


MODERN SHOP FRONTS. X.—PREMISES OF MESSRS. MELLIER, ALBEMARLE STREET, LONDON, W.
GALE, DURLACHER, AND EMMETT, ARCHITECTS.



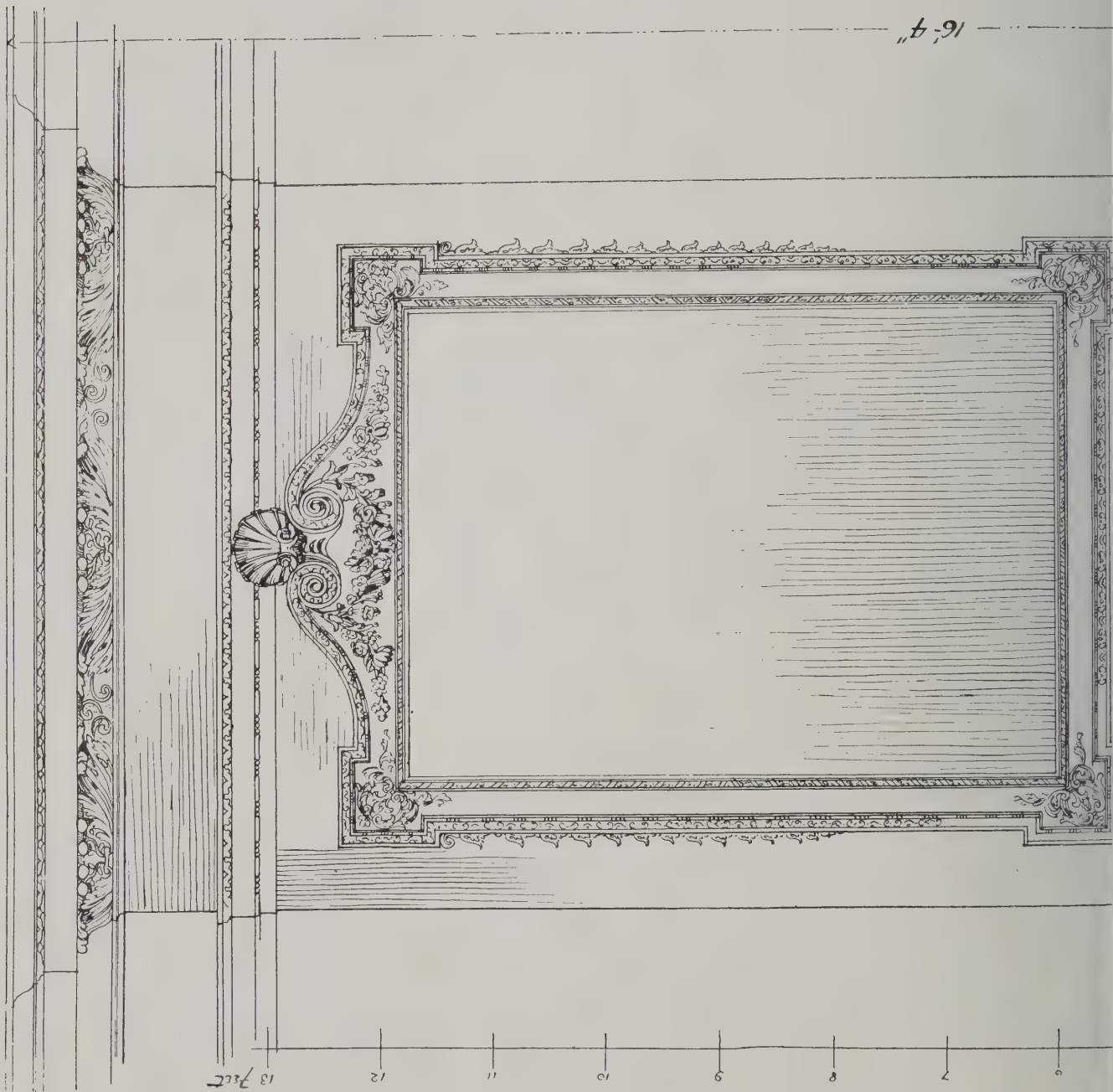
RESTORATIONS OF ANCIENT ARCHITECTURE. IV.—KHORSABAD.

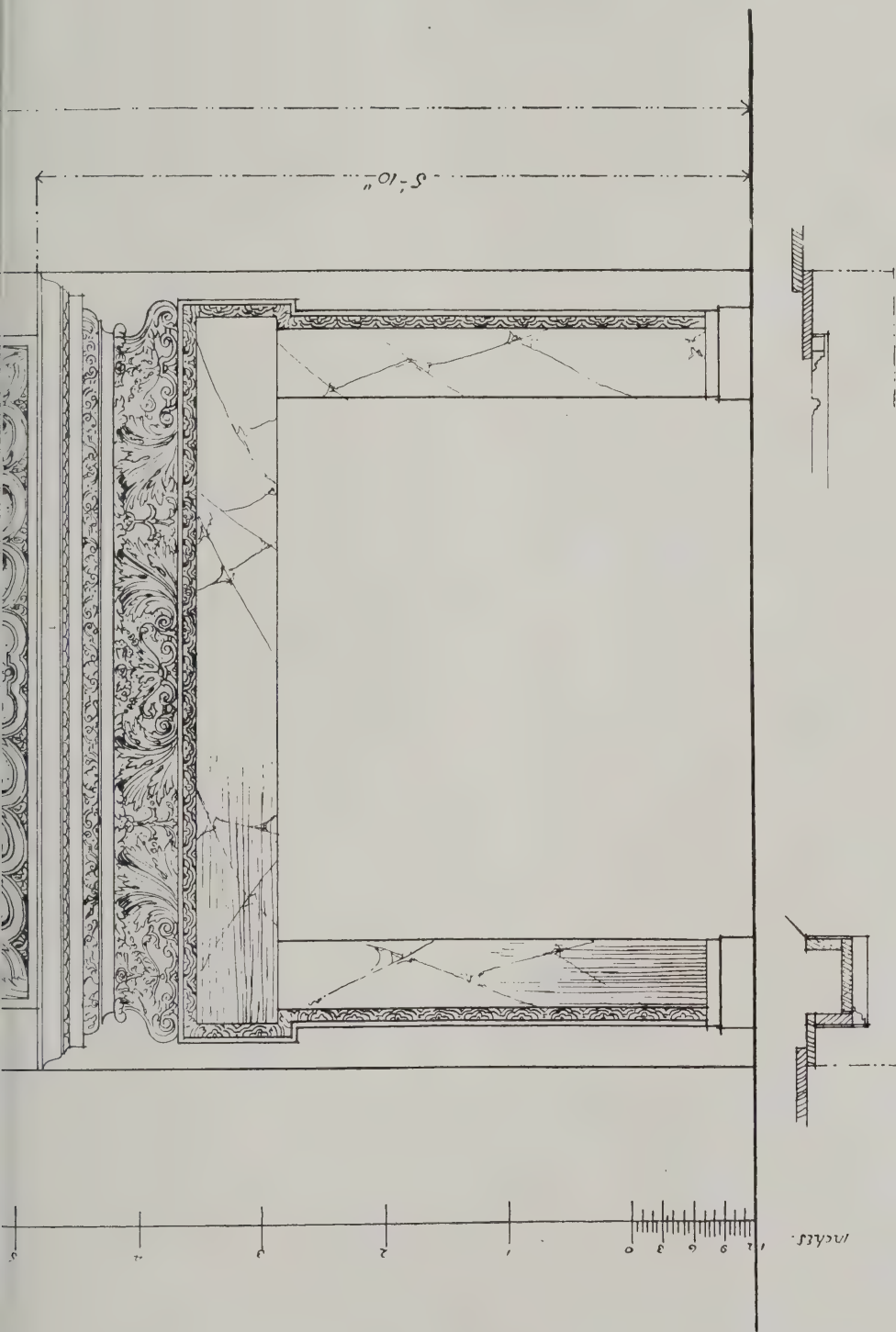
From a Drawing by A. C. Conrads.



MONUMENTAL ARCHITECTURE. VI.—PALAIS DE JUSTICE, PARIS: COMPLETE PROJECT, PLACE DAUPHINE.

J. L. DUC, ARCHITECT.





Carved Oak
CHIMNEYPIECE
from an Old Room in Cambridge.

MEASURED DRAWINGS OF GEORGIAN INTERIOR DECORATION—IV.

Measured and Drawn by T. J. Beveridge.

THE REPAIR OF ANCIENT BUILDINGS.*

BY W. A. FORSYTH, F.R.I.B.A.

Shoring.

SHORING is required to support walls or roofs subject to movement or collapse. Arches and other openings will require centering, which should be designed to counteract the thrusts which have caused failures in the structure. A raking or flying shore employed to buttress a building where repairs will occupy a long period of time should have solid concrete sills, so that the timbering be not affected by soil movement and that greater and more permanent abutment be secured. Needling must be carefully undertaken, and where the old displaced bricks or stones cannot be replaced the repair should be carried out with different materials, in order to record the disturbance and the extent of the work. Shoring should be allowed to stand for a long period before being eased or struck. When effectually shored it is frequently desirable that the walls of a building be grouted before underpinning or other works are attempted. All shoring which will probably be left in position for a considerable period should be lime-washed, in order that it be more easily seen and that the timber be preserved.

Grouting.

It is to that eminent engineer Sir Francis Fox that we owe so much in the recent development of grouting by mechanical pressure. For a detailed account of the history of the grouting machine reference should be made to the Paper which he read before the Institute in February, 1908.

It frequently happens that a fractured rubble wall, a weak footing, an insecure bridge has failed, and can only be repaired by first consolidating the masonry before foundations or other repairs are dealt with. Briefly stated, the method of applying cement grout is as follows:—The operation, like underpinning, must be performed in small sections. All loose dry mortar and dust is first removed; that which escapes being raked from the open joints is blown out. Great care must be taken not to dislodge the aggregate of the wall—that is to say, the rubble, the bricks or stones, as the case may be. Large stones should be wedged up.

The parts of the wall thus cleared are then well saturated, also under pressure, after the face joints are blocked up, usually by wet clay. This moisturing will slake the inert qualities of ancient lime and assist the process of solidification. The grout, mixed according to requirements, is then forced by the machine into the wall through a small aperture left for the purpose. The clay joints should be watched, in case the grout escapes prematurely; experience will determine when the particular section is fully grouted. It is usual to mix a slurry composed of one part of cement to one part of sharp, but not too coarse, sand. Frequently neat cement is injected into the fissures. The effect of this injection is to solidify the wall, leaving it in a state reasonably safe for the underpinning, the cutting out of cracks and bonding in strong material, or other operation.

The clay sealing of the joints is removed after ordinary setting has begun to take place, when it will usually be found that the grout has penetrated the wall or structure under treatment. It is then desirable to point the more open of the joints of the external face to exclude weather. It is not necessary, however, to point internal joints, but to leave them open in order to show how the old materials have been grouted.

Repairs of Ruins.

Generally speaking, the tops of walls, arches, or

other features require most attention, in order to arrest the penetration of moistures and the consequent disintegration of masonry. Asphalt, tar-paving, cement-concrete, or tile-paving are good media; in each case the method of laying should be governed by the necessity for throwing off water. In many cases soil and turf may be relaid upon the paving or covering in order to retain the hand of Nature, which provides that pleasing compensation for the sense of loss sustained by the ruined state of the building. Foundations marking the site of departed works should be specially preserved. Ivy and other large growths should be constantly cut back. Ivy will grow completely through a 3-foot stone wall, and appears to receive nourishment from mediæval lime-mortar. The chances of the retention of moisture thus afforded renders the removal of these creeping things essential. Similarly attention should be directed to the lower parts of ruins, so that grass or soil shall not accumulate to the detriment of walls, piers, floors, and other parts.

Scaffolding.

It is most important that scaffolding and plant generally be utilised in such a way as to cause no injury to buildings by its erection and removal. For this purpose it is generally found that an independent scaffold is to be preferred. It is sometimes found that putlog holes remain in ancient walls, in which case an ordinary single scaffold may be used. No new holes should be permitted to be cut. Thirteenth-century flint rubble walls sometimes retain putlog holes, and they are formed in stone or chalk-dressed openings. These are found in stages at intervals similar to those used at the present day. In most cases the intervals of the stages should be adapted to the requirements of the actual work. Old putlog holes or resting places or ledges should have suitable protection by straw or sack packings.

Pulling Down.

Although the subject before us is preservation, there are occasions when demolition is to be faced. No effort should be spared in the careful handling and protection of material intended either for re-use or removal. Although the occasion is rare when a rebuilding with old materials is entirely satisfactory, it is essential to mark or number the stones, timbers, and other parts, and to provide due protection. When the Tattershall Castle fireplaces were taken out many of them were damaged. It is a matter of national congratulation that these mantelpieces have been carefully replaced by Lord Curzon in their position, and, thanks to the personal supervision given by Mr. Weir, look little the worse for their adventures.

Pulling down should be deferred until the last available moment in cases of necessary alteration or enlargement, in order that hope of retaining the old work be not abandoned until all alternatives have failed.

Underpinning.

There is, I think, too great an inclination amongst architects and constructors generally to underpin old buildings, especially those of mediæval date. Rubble walls indicate the action of roof thrusts or undue movements very readily upon the inner and outer surfaces. It is then that underpinning is hastily resorted to, and it frequently happens that the operation has been proved to be unnecessary. It, moreover, involves risk of disturbance to other parts which are sound. Underpinning is more effectual when undertaken generally rather than partially.

* Extracts from a paper given at the R.I.B.A. on Monday, December 15th.

All underpinning must be carried out in short lengths, and the new material wedged or pinned up to the old. A damp-course should be inserted when possible. Horizontal damp-courses should project beyond both faces of a wall. No underpinning should be begun until the soil is free from possible influence by drainage. Cement is the best matrix for mortar used under these conditions; it should be of a quality capable of passing a standard test.

Drainage.

Defective drains are a perpetual source of danger to buildings. These faults are not detected until dampness or some failure in walls is observed. Similar injury is occasioned by faulty eaves gutters and down-pipes. Concentrated water soaks into and loosens foundations or penetrates walls, to the destruction of woodwork and decoration; the soaking in is intermittent rather than persistent, and therein lies much of the trouble. In the matter of churches surface channels are in all cases to be preferred to hidden drains, and should at all times be kept clear.

Iron pipes should always be of circular section; square pipes should only be used when fixed well clear of the walls to enable the periodical paintings to take place. Expansions due to temperatures cause less havoc under these conditions.

Rubble Walls.

It may be said that more than half the ancient buildings in this country possess what may be termed rubble walls, and are therefore the most general of the repairs with which an architect has to deal. The excellent condition of the rubble walls of the Romans is a remarkable testimony to their constructive knowledge. Local materials were always used and understood by them. The tile bands which are sometimes bonded through the full thickness, and often built to a partial extent into rubble walls, are not only pleasing in effect, but became, in my opinion, absolute necessities in good concrete building. London Wall was so built. Early mediæval workers in the Eastern Counties made use of these tile bonding courses; but, generally speaking, rubble walls are devoid of ties of any kind. No rubble walls have survived so well as those with the tile bands.

In almost all cases no pointing is required. The faces exposed to the rainy quarters are those mostly found to have these mortar interstices washed out; but it is only in the dire extremity of the solid materials having become loose that any repair is necessary, and, indeed, can be efficiently performed. Then it will be necessary to cut out convenient patches, prepare the wall, and build in the old material in a concrete manner with centering. Bonders should at the same time be inserted. In all cases flints used in repairs to facings should be "dug" and not used from surface collections.

Masonry.

Stonework can be patched either with new stone or other materials; it can be entirely rebuilt, and it may be coated with preservative solutions. The failure of the ashlar of other facing, moulded and carved work, is due to atmospheric causes, and the action of the destructive agent will always vary according to locality or season. In this matter, therefore, no general rule can be applied to the treatment of stone buildings. There is to be observed, however, the governing principle of clearly expressing the repairs or replacements in all works of preservation.

No more instructive instance can be quoted than the sad decay of the stonework of the city of Oxford. Here the failure of the local material is a matter of deep regret and a subject for serious consideration. I think it is generally admitted that the mediæval builders used sound material obtained from the neighbouring quarries, but the architects of the sixteenth, seventeenth, and eighteenth centuries employed inferior Headington stone, the facing of which fared so disastrously in the last century.

The facing of the St. Auld's front of Christ Church had perished considerably and generally throughout the façade. An entire structural replacement has been carried out by Mr. Caröe.

At Magdalen College Tower Mr. Warren had a more structural problem to face. In many respects the work of repair was attended with some anxiety, and great care was taken effectually to arrest further decay.

This work, in effect, consisted of piercing or patching the old structure with new stones, and in many respects the method was easy of adoption.

At St. John's College an entirely distinct process has been applied by Mr. Harry Redfern. Again the Headington stone had seriously failed on the garden front, not alone in the ashlar, but in mouldings, mullions, and other important parts. No new stone has been inserted to replace old material. All loose and badly decayed work was removed to receive roofing tiles and hydraulic lime-mortar built to the approximate form of the moulding or feature repaired. Ashlaring and copings were similarly treated, and when the work proceeded the new materials were rendered with the lime-mortar.

The preservation of stone by the application of solutions has much to recommend it, except the quality of durability.

At Westminster Abbey a great work in limewashing is being carried out by Professor Lethaby.

The application of baryta water has been extensively and successfully attempted. A grey stone is produced upon decayed stonework after it is prepared for treatment. The process is laborious. In making use of the foregoing means of repair a few practical observations may not be out of place.

Reinforced concrete is best for lintels built into old walls; these may be inserted or cast in position, according to circumstances.

Pointing.

Great care is required in preparing open joints for the new mortar. As a rule a joint which cannot be prepared by raking should never be pointed. No joint should ever be cut out or hacked out unless for some special purpose, such as grouting. After removal of loose particles the old work must be saturated in order that the moisture of the new mortar be not absorbed by the dry wall, thereby reducing the setting of the new mortar. This wetting will also energise the inert qualities of old lime-mortar and assist to a moderate extent a structural combination in the two mortars.

Roof Coverings.

Old roofs appear to gain in scale and interest when the repairs are visible. It is not always possible to secure old, weathered tiles for repairing ancient roofs. Rough, well-burnt materials should, however, be used, and the tiles should possess considerable "camber," not only in length, but in width.

The cambering of tiles is, perhaps, the most important quality in their manufacture. Capillary attraction is thereby reduced, and the air spaces thus formed are valuable for assisting evaporation of moistures and in preserving the tiles.

Lead Roofs.—It is perhaps unnecessary to remind architects that cast lead sheets are preferable to the milled quality. Re-casting old lead should be done on the site of the building under repair. Flats should receive a fair slope of at least 1 in. in 25 or 20. Boarding must be run parallel with the fall. Welts should, if possible, be used on church roofs. Wood rolls when used should have grooves or throats to arrest capillary attraction. Drips should have similar provision.

Asphalt.—It is essential that the bitumen should be thoroughly distilled before mixing with mastic asphalt, and be devoid of fibre. This material, never, found in ancient works in this country, is of great use when other materials cannot so readily be used to effect structural repairs. It has many qualities which render

it attractive in exposures to moisture, heat, and cold. It is especially valuable in covering old copings and cornices, rendering their preservation comparatively easy, without disturbing the old work. Limestone and tar paving is another useful and efficient means of protecting the tops of walls, vaulting, or foundations of ruins. Turf and other growths should, however, be relaid upon it.

Plastering.

Repairs to plain plastered surfaces should extend to the actual defective area; the temptation to replaster a whole wall for smartness and uniformity should be avoided as far as possible. Limes must be reliable and of known condition. Sand cannot be too coarse or clean. Hair should be obtained from tanneries where the old-fashioned process of detaching by the immersion in lime is still in force. Most hair now in use is removed from hides by means of chemicals, and is, in consequence, brittle. Leather suffers by the same process.

Plastering can be applied in one coat. No more than two, however, are necessary, and it should always be spread and worked up with wood floats.

Floors.

Renewals in floors should, as far as possible, be made with materials kindred to the old. Where modern flooring is indispensable it should take the form most harmonious to the position in which it is laid. Uneven floors or pavements should not quickly be condemned; they can be made fit for use by ordinary repairs. All paving laid upon concrete should have a heavy layer of dry rubbish or hard core immediately upon the soil; this bed should be rammed and of an absorbent nature. For this purpose broken brick is best, and condensation is greatly reduced. A layer of agricultural drain-pipes is an efficient, though costly, process. All new pavings, whether tile or stone, should, for appearance, have large joints.

CORRESPONDENCE.

The Editors disclaim all responsibility for the statements made or opinions expressed by correspondents, who are asked to be brief, and to write on one side only of the paper.

"Modern" Architecture.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—In asserting that the mediæval builders were not endowed with a very high order of intelligence, inasmuch as they were often incapable of graphically determining the thrusts of vaults and arches, your contributor "A. T. E." seems to overlook the fact that this deficiency was not peculiar to the Goths alone.

The choir of Beauvais will no doubt be cited as a convincing proof, but the Gothic camp can retaliate with such instances as the collapse of Sansovina's elliptical ceiling in the Library (quite an insignificant problem in comparison), which resulted in his imprisonment and a fine of one thousand scudi.

Then, again, Bernini, rejoicing in all the scientific perfection of that enlightened age, was responsible for the campanile of St. Peter's, which, after costing over £23,000 to erect, had to be demolished before completion, at a further cost of £3,000, by Rainaldi, on account of its stability and cracks.

Thus, the much-maligned Goths, enshrouded in mediæval darkness, lose nothing by comparison in this respect with the giants of the Renaissance, arrayed in their panoply of perfection in all the science and learning of their day.

EDWARD R. BILL, M.S.A.

Wellington, Salop.

[The engineering imperfections of Renaissance buildings may be admitted. The point is that their excellence is due not to constructional skill which is manifested in them, but to qualities of proportion and massing. According to the mediævalists, however, the

virtue of a Gothic building largely consists in its nice adjustment of stress and strain; we are asked to believe that, besides being the incarnation of religious spirit, they are triumphs of engineering.—A. T. E.]

Columns in the Ceramic Gallery, South Kensington Museum.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Will you allow me to express my amazement at the article in your last week's issue, entitled "Crockeryware Columns"? It hardly contains a sentence which, for the sake of all that is capable in the art of to-day, should not be immediately challenged. The columns to which your writer refers are part of the general scheme of decoration in the ceramic gallery. They are of fine proportion and colour, and are enriched all over with beautifully designed and modelled ornament. It is difficult to account for your contributor's criticism except on the ground that he knew nothing of their history and had never seen them. I have no work of reference at hand just now, so cannot be certain as to whom we are actually indebted for these wonderful columns. But the whole of the decorative work in the gallery is obviously inspired by, if not actually executed by, that great group of artists, Alfred Stevens, F. W. Moody, and Godfrey Sykes, those eminent pioneers in the modern movement in art, to whom Englishmen owe such an incalculable debt. I most sincerely hope that the protest of men like Sargent, Frampton, and Jackson will be successful.

JOHN M. MACFARLANE.

[The writer of the note to which Mr. Macfarlane refers has been long acquainted with the Della Robbia columns, and even admires them *per se*. But while he is quite prepared to admit that in design and craftsmanship they undoubtedly reach a high point of excellence, he has always felt that the artistic skill lavished upon them was misapplied. Of course, one always regrets the destruction of artistic work, even when that course is inevitable. Possibly some of these columns may be preserved as examples of consummate art-craftsmanship—with some record of its misapplication in a too strenuous endeavour to assert the enterprising spirit of their times.—EDS. A. AND B.J.]

Classic and Gothic Architecture.

To the Editors of THE ARCHITECTS' AND BUILDERS' JOURNAL.

SIRS,—Though directly opposite attitudes have been taken up in the recent controversy on the above subject (arising out of Mr. March Phillipps's newspaper articles), I think there is something to be said on both sides. Gothic architects failed because they were too ambitious or careless. I think that architects became just as careless in the time of James I., probably not in construction, but certainly in design. Anyone living in a Jacobean house, as I do, cannot think otherwise. As I write I have before me a chimney-piece with bulbous columns, which are far from beautiful in outline. I have long since arrived at the conclusion that Jacobean work has become popular for the fascination age has given it, and that the architecture in itself is debased; though I must confess that the charm of old work almost transforms this style into a thing of beauty. Modern houses in the Jacobean manner, however, are the reverse of beautiful. The most hideous house I ever saw was one that cost £20,000, the woodwork being executed in pitchpine and the outside in terra-cotta, all in the Jacobean style!

I think that the modern tendency to build structures other than churches in the Renaissance style is good, for we naturally associate Gothic with ecclesiastical architecture.

J. H. KERNER-GREENWOOD.

THE CONDITIONS OF BUILDING AND ENGINEERING CONTRACTS.—XII.

Being an Explanation of the Clauses of the General Conditions of Specifications and the Legal Decisions affecting them.

SPECIALLY CONTRIBUTED BY E. J. RIMMER, M.Eng., B.Sc., A.M.Inst.C.E., of Lincoln's Inn and the Northern Circuit, Barrister-at-Law, and KENNETH G. THOMAS, B.A., LL.B. (Cantab.).

(Continued from page 543, No. 988.)

Parenthetical numbers in the text refer to cases noted at the end of each section.

CHAPTER IX.

INDEMNITY.

The clause in a contract known as the Indemnity Clause is, in effect, an agreement by the contractor that the care of the works during the progress thereof and during the period of maintenance shall remain with the contractor; that he will indemnify the building owner against all actions, proceedings, etc., against the latter in respect of all damages or accidents to persons or property of whatsoever description, by or in consequence of the execution of the works, all trespass, all risks attending the execution of the works, anything on the site of the works that may be stolen, removed or destroyed, to whomsoever belonging, the making good of all damages done to the works whether wilful or accidental, including deficiency of timbering, fencing, watching, lighting, etc. The clause usually provides also that the contractor shall, in carrying out the works, conform to the statutory and other legal enactments applicable to them, and give all notices and pay all fees payable to local authorities and others in respect of them.

It is usual also to insert a clause providing that the contractor shall insure against all liability for accidents under the Workmen's Compensation Acts.

The Indemnity Clause is an exceedingly useful and necessary one for the building owner, and it is proper and desirable that such a clause should be inserted in all contracts for his protection in order to prevent his being mulcted in damages by reason of acts or accidents occurring in connection with the execution of the works under the contract, over which he has no control.

In the first place, it is necessary to consider how a building owner may become liable for the acts of the contractor; for until he becomes liable, there can be no question of indemnity.

It is a rule of law that the relation of master and servant does not exist between an employer and an independent contractor, whose services he engages, so as to make the former responsible for the torts (*i.e.*, civil wrongs) of the latter or his servants. Such rule is, however, subject to certain exceptions, which may advantageously be considered separately.

1.—Where the employer interferes in the execution of the work.

Whether an employer retains such control of the work or interferes to such a degree that the contractor is no longer an independent contractor, will be a question of fact in each case; and where it is found to be so the ordinary relation of master and servant will be deemed to subsist between such employer and such contractor. Interference by the employer in any particular instance might not be such interference as would create such relationship, but might yet make the employer liable for accidents arising out of torts committed in the course of the execution of that particular piece of work in so far as they were attributable to such interference.

When works are being constructed by

a contractor to the satisfaction of and in the manner directed by an engineer in the employ of the building owner, the latter retains a certain degree of control over the contractor, and, it seems, will be liable for torts committed by him where such torts are consequent on the directions of the engineer. But the building owner will not, generally, be liable for torts committed by the workmen of the contractor, for over them he has no control in their work, even where the contract gives him some power to dismiss them.

2.—Where there is a statutory obligation on the employer to do the work which he employs the contractor to do.

In the words of Lord Watson (87): "It is an implied condition of statutory powers that, when exercised at all, they shall be exercised with due care." Thus, in one case, where the defendants, having statutory powers to construct a drain across a highway, and, being under an obligation by the same statute to restore such highway to a good condition, employed an independent contractor to construct the drain and he failed properly to reinstate the road, the defendants were held liable for an accident caused by such failure of the contractor (88).

3.—Where the work contracted to be done is unlawful.

Thus, where a gas company employed an independent contractor to open streets in order to lay gas pipes, the said company not being possessed of statutory powers, and the contractor, in restoring the surface of the road, negligently left a heap of stones lying in the road whereby the plaintiff was injured, the gas company was held liable (89).

4.—Where the work, though lawful in itself, is in its nature dangerous and likely to cause injury unless special precautions are taken.

The rule has been laid down by Cockburn, C.J. (90), "A man who orders work to be executed, from which, in the natural course of things, injurious consequences to his neighbour must be expected to arise unless means are adopted by which such consequences may be prevented, is bound to see to the doing of that which is necessary to prevent the mischief, and cannot relieve himself of his responsibility by employing someone else—whether it be the contractor employed to do the work from which the danger arises, or some independent person—to do what is necessary to prevent the act which he has ordered to be done from becoming wrongful. There is an obvious difference between committing work to a contractor to be executed from which, if properly done, no injurious consequences can arise, and handing over to him work to be done from which mischievous consequences will arise unless preventive measures are adopted."

In one case (91) the owner of a house employed an independent contractor to fix for him a lamp over his doorway. The contractor fixed the lamp insecurely, and it eventually fell on the head of and injured a passer-by. The owner of the house was held liable and Smith, L.J., has said (92), "Since the decision in the House of Lords

in *Hughes v. Percival* (93) and that of the Privy Council in *Black v. Christchurch Finance Co.* (94) it is very difficult for a person engaged in dangerous work near a highway to avoid liability by saying that he has employed an independent contractor, because it is the duty of a person who is causing such works to see that they are properly carried out so as not to occasion any damage to persons passing by on the highway."

5.—Where Section 4 of the Workmen's Compensation Act, 1906, applies.

This section enacts that where any person (thereinafter called the principal) in the course of and for the purposes of his trade or business contracts with any other person (thereinafter called the contractor) for the execution by or under the contractor of the whole or any part of the work undertaken by him, then the principal shall be responsible for the payment of compensation to the contractor's workmen if they are injured while engaged in such work as aforesaid, and a provision is added that the principal shall be entitled to be indemnified by the contractor by whom an injured workman to whom he has been compelled to pay compensation has been employed.

It is not within the province of this work to enter into a discussion as to who may be a "principal" within the meaning of the section referred to, but it should be noted that a municipal corporation employing a contractor is always deemed to be such a "principal." It is therefore invariably the case that in the contracts of municipal corporations a clause is inserted making it obligatory on the contractor to insure in an insurance office, to be approved by the employing corporation, against liability for accidents under the Workmen's Compensation Act, 1906, and to produce receipts for premiums, etc., where required so to do. The contractor's policy of insurance should be carefully inspected on behalf of the corporation before the work is begun, and an endorsement covering the corporation should be placed upon it by the insurance company in a form satisfactory to the legal advisers of the corporation.

6.—Where the case is within Section 23 of the Highways and Locomotives Amendment Act, 1878, as amended by Section 12 of the Locomotive Act, 1898.

The effect of this amended section is that where extraordinary expenses have been incurred by a road authority in repairing and highway, whether a main road or not, by reason of damage done thereto by excessive weight passing along or extraordinary traffic thereon, the authority may, if they have received from their surveyor a certificate to that effect, recover the amount of such extraordinary expenses from any person by or in consequence of whose order such weight of traffic has been conducted. The words "or in consequence of" (in italics) were added by section 12 of the Locomotive Act, 1898, and it is clear that local authorities might, in the absence of an indemnity clause, be seriously affected by this law.

The utility of inserting an indemnity

clause in a contract has sometimes been questioned, for it has been doubted whether the Courts would enforce such a claim having regard to the well-known doctrine that no right of contribution exists between joint tort-feasors. An employer, as has been stated, is not liable for the tort of an independent contractor except in the six cases before mentioned, but in those cases, the employer is in the position of a joint tort-feasor with the contractor, and, in the absence of agreement, has no right of contribution against him. In *Percival v. Hughes* (93), it was held that a building owner, though a duty was cast upon him by law, might properly take an indemnity from a contractor whom he had employed to perform that duty, although primarily the liability of the building owner remained entirely unchanged and the person injured could have his remedy against either the building owner or the contractor. In a recent case (95), the validity of an indemnity clause in a contract has been upheld, and it now seems clearly settled that an indemnity clause in an ordinary building or engineering contract will be enforced against the contractor where the work to be done under such contract is in itself lawful.

And in another case (96), where, during building operations, there was danger of the plaintiff's wall collapsing, the building owner's architect ordered the contractors to underpin the said wall, subject to the plaintiff consenting. The contractors underpinned without obtaining such consent, and the plaintiff brought an action of trespass against the contractors, who claimed an indemnity from the building owners (the Commissioners of Works). Mr. Justice Avory held that the contractors were not entitled to such indemnity; for if the order was to do the work, whether consent was obtained or not, then the act was tortious, and the principle of no contribution between joint tort-feasors obtained; and if the order was given subject to the owner consenting, then the contractors, as they had not obtained that consent, were solely responsible for the damage. Mr. Justice Avory further stated that the case was one to which the indemnity clause in the contract would apply.

It is submitted that although an agreement by one person that he will indemnify another if that other will agree to commit a tort for him would probably be contrary to public policy and void, yet a very strong distinction must be drawn between that case and the case where a building owner takes an indemnity from a contractor, because both parties are aware that torts may possibly be committed unwittingly during the progress of works in themselves lawful. There is, in the latter case, no moral turpitude on the part of the building owner, and so long as his liability as regards the public remains unaltered there is no reason why he should not take what steps he can to protect himself against the possible consequences of his contractor's carelessness.

In view of what has been said, it is hardly necessary to point out that in the case where an employer becomes liable for the torts of his contractor because the work which the latter is employed to do is unlawful, the employer will not be able to enforce the indemnity clause against the contractor; but it seems that in all other cases, the employer, where liable, will be entitled to be indemnified by the contractor.

Cases referred to in the text.

(87.) *Sanitary Commissioners of Gibraltar v. Orfila* (1890) 15 App. Cas. 400, at p. 411.

(88.) *Gray v. Pullen* (1864) 5 B. & S. 970.

(89.) *Ellis v. The Sheffield Gas Co.* (1853) 23 L.T. Q.B. 42.

(90.) *Bower v. Peate* (1876) 1 Q.B.D. 321, at p. 326.

(91.) *Tarry v. Ashton* (1876) 1 Q.B.D. 314.

(92.) *Holliday v. National Telephone Co.* (1899) 2 Q.B. 392, at p. 400.

(93.) (1883) 8 App. Cas. 443.

(94.) (1894) A.C. 48.

(95.) *Newcombe v. Yewen and the Croydon R.D.C.* "Times" newspaper, 17th February, 1913: "Y was doing road works by contract for the Rural District Council and left an open pit by the roadside insufficiently fenced and not properly lit. N fell into it, and successfully sued the defendants for damages. The Council then claimed an indemnity from Y under the contract, and it was held that it was entitled to one."

(96.) *Kirby v. Chessum* 30 T.L.R. 15 and "Architects' and Builders' Journal," Vol. XXXVIII., p. 399.

[A limited number of copies of each of the issues containing instalments of these articles on "The Conditions of Building and Engineering Contracts" are still in print, and may be had from the publishers.]

CRAFTSMANSHIP.*

BY J. M. W. HALLEY.

The crafts by which man can express something of his warm humanity are legion and run through a wide gamut, from beating a piece of iron into the shape of a flower to painting a great picture; from cutting a stone to building a cathedral. But they are all bound together by some inexplicable relationship, so closely that one of them cannot languish without all being affected; similarly, if one is in complete health the whole membership thrives. It is as if they are members of one body.

Art and craftsmanship do not grace alone high and permanent things, but also the low and ephemeral, and the cathedral which enshrines history and the aspirations of man is not more their object than the cottage with all it contains. The mere size of the one does not give beauty nor the littleness of the other make it escape ugliness. But either can hardly exist without art, which imparts what the craftsman has to give, great or little, as he can. The greatest craftsmen have given beauty to the world through the expression of their extraordinary individuality. Their work is such that no other man could have done it in a similar manner. Michael Angelo, working alone for three years, painting the vault of the Sistine Chapel, or raising the dome over St. Peter's, and Raphael, painting his frescoes in the Vatican, stand above other men. Indeed, Michel Angelo appears like a giant who sits apart, like his own statue of Moses, above the stature of men, almost a god. But there is a lesser race of craftsmen whose work has been to give beauty to the things of everyday life, like the makers of the beautiful furniture of the eighteenth century, whose vocation is as necessary to the world as that of the great masters; and certainly it is a greater achievement to be the author of some beautiful thing in a home, where people will be continually seeing it and enjoying it, than to be the painter of an indifferent canvas.

The greatest craftsmen, as I have already said, gave their beauty to the world through the expression of extraordinary individuality, and others, delightful as their work is, without any particular personality, otherwise their anonymity would be imperfect.

You have only to read down the pages of the history of art to discover this. A few names stand out which are credited with

work beyond the scope of many lives. . . . Three names are more particularly associated with the building of St. Paul's Cathedral—Wren the architect, Grinling Gibbons the carver, and Tijou the smith. These men were too celebrated to lack employment. As a matter of fact, they were all exceptionally well employed. But the point is that they are all credited with work far beyond the power of any man's life. Whenever a fine building of the late seventeenth or early eighteenth century is discovered Wren's name invariably creeps in. In the same way Grinling Gibbons's name is associated with every piece of carving of that date, and Tijou when ironwork is mentioned.

The truth is, they were aided by numbers of splendid craftsmen. Masons like the Strongs, the Marshalls, Wise and Hill, Thompson and Jasper, Lathom and Samuel Fulks, made Wren's work possible.

It is usually supposed that the race of craftsmen died out at the time of the dissolution of the monasteries early in the sixteenth century, but it is quite wrong—on the evidence of St. Paul's Cathedral craftsmen continued to improve in skill to the eighteenth century. . . . I do not think there is anything more difficult for a joiner to make than a stair with a cut string spiral balusters and a ramped and wreathed handrail. In the city of London you will find hundreds of such stairs—with their beautiful carved spandrels, each with its set of three delicate balusters varying in length—descending and ending in a perfect curve. The wrought-iron screens, again, of that period are far finer than any mediæval work, and the masonry and brickwork of St. Paul's and the City churches are also better.

The power which is responsible for the decadence of craftsmanship is steam. Before this titanic strength the feeble hand of man faltered and failed. The traditions of centuries—centuries that had fostered good handiwork—were forgotten in a few short years. The sheer power of steam fascinated our forefathers, who seemed to guess its potentialities without noticing where it failed. We have since discovered that it failed where the feeble hand of man succeeded—in giving to stone and wood, or indeed anything it touched, something of his own warm humanity. With his skill, the craftsman lost also a traditional knowledge of design; and this is the greater loss, as it is more difficult to replace.

William Morris tried with all his might to pick up the threads of the lost tradition; and although we may to-day think his ideals wrong, we must give him the credit due to a pioneer.

William Morris, Ruskin, and a few other men saw that the nineteenth century, with its science, had forgotten to wonder at the universe. It had girdled the globe with ships that moved indifferent to wind and tide; it had sought out the uttermost star and charted its movement. Doubtless the nineteenth century had cause to be complacent, but when it lost art and invented the industrial system it had less reason to be content. And if we have just cause to be proud of the time in which we live it may not be without use to consider that we cannot do some things to-day which were done easily and beautifully in the seventeenth century.

The remedy for bad art is good art, and it lies with us who are craftsmen to apply this remedy. We must supply the lack of tradition by diligently cultivating in ourselves the sense of beauty, skill of hand, niceness of observation, without which only a makeshift of art is possible.

* Substance of a lecture given at Toynbee Hall on December 3rd.

THE ARCHITECTURE OF PORTUGAL

BY W. H. WARD, M.A., A.R.I.B.A.

(Concluded from No. 988, p. 542.)

The church at Batalha was begun in 1385, and the Royal mausoleum was completed in 1430. It is built of white limestone, which turns a golden yellow with age, and stands in a valley surrounded by woods of pine and cork oak. The plan is the traditional basilican one, with a transept and five apses beyond it. The use of such a plan disproves the tale that the design was obtained by Queen Philippa ready-made from England, and it is probably the work of a Portuguese, Affonso Domingues, who seems to have carried the eastern portion up to a considerable height. The remainder was carried out by one who succeeded him in 1402, and is said to have been an Irishman. The mixed characteristics found in the church make its origin a most difficult problem to unravel, and some of those which give it an English look may be due to other causes than English influence. For instance, the long lines of its balustraded and pinnaced roofs, which suggest a Perpendicular church or college chapel, may be only the outcome of the method of roofing common both in Spain and Portugal by covering over the vaults with a flat pavement of accurately fitted stone slabs. But, further than this, the great western doorway strongly resembles the same feature at King's College Chapel, Cambridge, and internally the ridge rib in the nave and the lofty arcade, with no triforium to divide it from the clerestory, and the clustered shafts and the chapel are all English features. On the other hand, the great height of the vault, 106 ft. high and 25 ft. wide, the bases of the nave shafts, and the square abaci of their capitals suggest French influence; other features are purely native.

King John III. and Queen Philippa, with four of their sons, including the navigator, are buried in the southern chapel.

The work was taken up again by Dom Manoel the Fortunate towards the end of the century, when the Manoelino style was in full swing. It was carried on till 1528 by a father and son of the name of Fernandes, and for five years more by one John of Castile, who also worked at Coimbra and Belem; but, even so, it was not finished, and still bears the name of *Capellas Imperfaitas*.

Dom Manoel also embellished the cloisters of Batalha by filling the older pair of openings with tracery of two alternating types, both composed of branch work, one of a regular reticulated pattern and the other a lace-like screen of following design, probably suggested by Indian examples. At Alcobaça is an extraordinary doorway, which is interesting as showing the affinities of Manoelino with the naturalistic tendencies of late Gothic in Germany, and the timid irruption into the midst of this flamboyance of Italian motives of diametrically opposite tendency. An opening with reversed cusps is framed in by two trees, with roots and stems and leafy boughs complete, and under their shadow nestle Italian arabesques.

Another monument of the Manoelino style is the Church of Sta. Cruz at Coimbra. It is relatively sober, and shows no traces of Oriental influence, but resembles rather a French or Flemish flamboyant work, and is remarkable chiefly for the beauty of its fittings and contents, its tombs and tile linings. Its western choir gallery contains a magnificent series of stalls, richly carved and gilded, probably the work of Flemings. Above the canopies a frieze of reliefs representing the adventures of Vasco da Gama in India, with a crest of foliage.

A Remarkable Church.

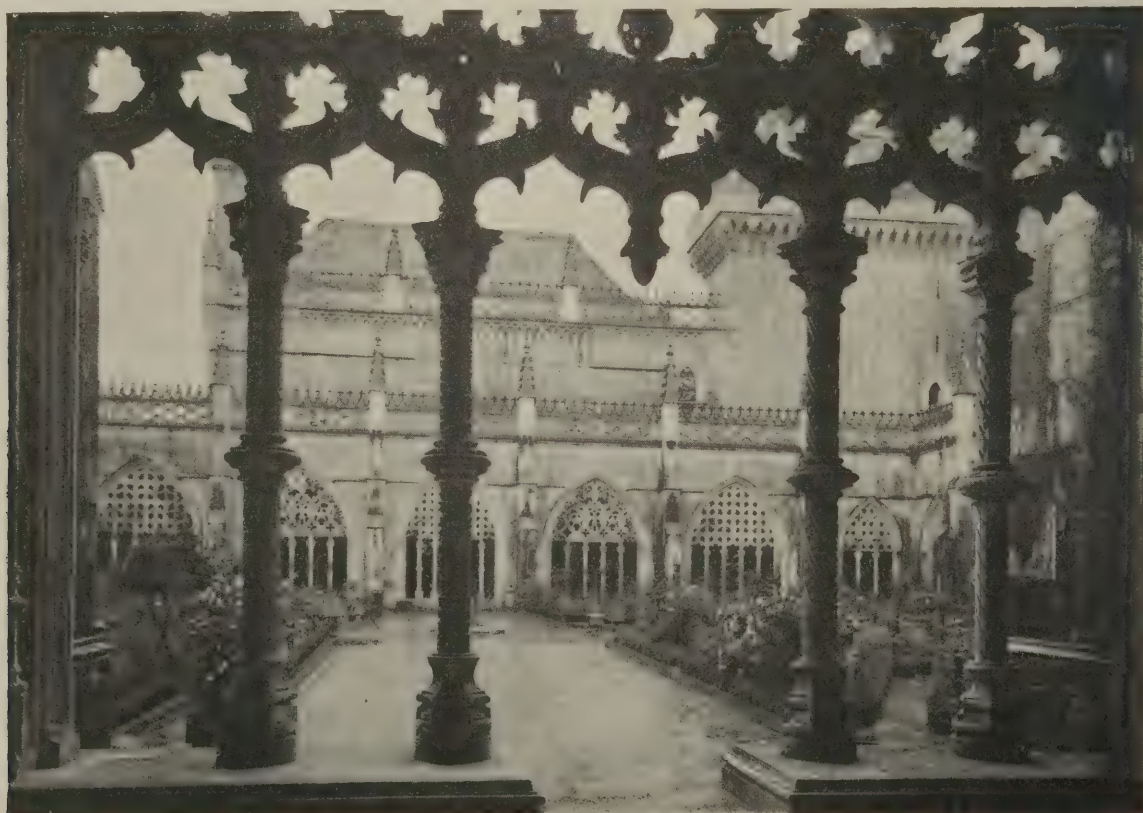
One of the noblest works of Dom Manoel's reign is the Hieronymite's

Church at Belem, on the Tagus, in the outskirts of Lisbon, and this is certainly one of the most remarkable in Christendom. Externally there is something in the appearance of the golden white crystalline limestone of which it is built, which closely resembles marble, and in the enriched doorway and windows sparsely set in a large expanse of plain wall, which calls to mind the Cathedral of Como, while internally the soaring columns and the broad spaces of mysterious gloom, shot through with rays of tinted light, inevitably suggest the Duomo of Milan.

The work, which was erected in commemoration of the discovery of the sea route to India, was begun in 1498, with Bontaca, a Portuguese, as architect. He was succeeded in 1511 by Lourenco Fernandes, and the latter by John of Castile in 1517, said to have been a Biscayan. About this date, too, the Frenchman, Master Nicolas, and John of Rouen also arrived upon the scene. The external features are finely conceived and delicate in workmanship—Manoelino Gothic in their general lines, with Renaissance ornament.

Internally, the wonder of the church lies in its vaulting. The aisles and nave are of equal height, about 90 ft., and there are no arcades or transverse ribs, but the vaulting ribs spring direct from the top of slender octagonal piers and radiate in all directions, like those of English fan-vaults; but, contrary to English practice, the fans do not touch or intersect, but are connected by spaces of what is really barrel-vaulting, though it is stiffened by surface ribs. The transept, which is 95 ft. long and 65 ft. wide, and is undivided by piers, has a vault soaring even higher than those of the nave, and yet this mighty vault is so scientifically constructed that it stood firm when Lisbon was rocked to its foundations by the historic earthquake of 1755.

The Early Renaissance hardly survived



BATALHA: THE KING'S CLOISTER.

the contemporary late Manoelino style. One of the cloisters at Thomar is a good example of the Palladian phase of the later sixteenth century.

The succeeding Baroque appears in many forms, few of which are as extreme as the Churrigueresque Church decoration at Oporto, begun in 1755 in commemoration of the great earthquake. The great Palace of Mafra, built between 1715 and 1730 for John III., under a Bavarian architect named Ludwig, is a relatively sober design, and, though its detail and features are coarse and perverse, it attains real dignity by the sheer size and fine proportions of its masses.

Domestic Architecture.

The domestic architecture of Portugal has, as a whole, little to commend it to attention. The general run of houses, both in town and country, is singularly lacking in picturesqueness of form or beauty of decoration, but, in being built of materials harmonising with their surroundings in a manner suitable to the climate, and being devoid of meretricious ornament or ill-conceived attempts at architectural treatment, they possess qualities that are in themselves no inconsiderable merits. The houses are squarely built, commonly without recesses or projections, pierced with square openings and covered with low-pitched roofs. The usual roofing material is the so-called "Italian" or "pantile," of a reddish-brown colour; the broad eaves are supported by a kind of cornice formed of several courses of similar tiles corbelled one above the other.

Wrought-iron hooks of more or less ornamental design are often used at the lower angles of hipped roofs to keep the hip tiles in position.

The angles, coigns, and the dressing of doors and windows are sometimes in masonry of the plainest possible description. But, apart from this, the houses are built of brick and rubble, covered with colour-washed plaster, white, blue, and mauve being the favourite tints. In modern times glazed tiles have also come into frequent use as internal wall covering.

The only other class of ornamental features besides those already mentioned consist in the pretty balconies which often jut out from upper stories. Their stone or marble floors are of every imaginable curvilinear or rectilinear shape, and are moulded on the edges and carried on corbels; while their wrought-iron balustrades are also of very varied design, the uprights being sometimes carried up so as to connect the balconies of two or three stories. Here and there houses in the smaller towns are rendered picturesque by their external staircases with sloping roofs, and country houses which rise a little above the rank of cottages or farm-houses occasionally indulge in verandahs formed by projecting the roofs some distance beyond the walls and supporting them on stone columns.

In spite of the general southern look of houses, such as those described, the Englishman in Portugal cannot help being struck by their possessing one familiar feature which is almost unknown in every other Continental country except Holland—in the sash window. We got it from Holland, and whether Holland got it from Portugal or Portugal from Holland or from us, or all three from somewhere else, seems uncertain. The Portuguese sashes are often of a primitive kind, without sash-lines fixed at the top, and requiring to be propped open with sticks. There are usually four panes in the width and four in the height, and, the window giving

rather a squat appearance in many of the houses of Oporto, they are surmounted by a moulded and dented transom and a glazed panel with an arched and radiating pattern of glazing about it.

One more Portuguese peculiarity, though not strictly architectural, remains to be mentioned before I conclude—the practice of paving the open spaces of the cities with mosaic patterns formed of small pieces of black-and-white stone, such as "Roly-poly Square" of the British tar in Lisbon, with its wavy lines, the place at Oporto with radiating ones, or the humbler market-place of Seiria with its lozenge pattern.

NEWS ITEMS.

An Office Removal.

Messrs. E. A. Roome and Co., builders and contractors, are vacating their City offices at 36, Basinghall Street, on December 25th. In future all business will be conducted from Crown Works, Urswick Road, Hackney, N.E.

New Building Surveyor for Birmingham.

Mr. H. A. Purchase has been appointed building surveyor to the Corporation in the place of the late Mr. A. W. Lee. Mr. Purchase is a native of London, but he served his articles as an architect in Birmingham, and in 1896 he entered the service of the corporation as draughtsman.

Liverpool Cathedral and Its Cost.

At a meeting of the Executive Committee of the Liverpool Cathedral recently, it was reported that Mr. Arthur Earle had paid the £10,000 he promised three years ago on condition that a further sum of £50,000 was raised. This had been done, but £35,000 more was still needed to complete the portion of the building at present in course of construction.

"Ancient Town-Planning."

Professor Haverfield has enlarged the paper which he read at the Creighton Lecture to the University of London, and also submitted in part to the London Conference on Town-Planning, and it is about to be published, under the title "Ancient Town-Planning," by the Oxford University Press. Greek and Roman town-planning—in Italy and the Roman provincial towns—are fully dealt with, and there are also a chapter on Roman building laws, an appendix on town-planning in China, and thirty-six plans and other illustrations.

Mr. Mitchell's Model Cottage.

The dispute between Mr. Arnold Mitchell and the Chelmsford Rural District Council in respect of the model cottage which he built at Great Baddow was discussed at a meeting of the council last week. Mr. Mitchell wrote stating that, in view of the decision that his cottage was a building and not a model, he formally asked for approval of the plans, and offered to provide drainage, water supply, and an ash-bin. He suggested that the council should not enforce the by-laws as to the height of rooms and the paved area at the rear. The Buildings and Works Committee reported that they were unable to advise the Council to waive the by-law in respect of the paved area, but with regard to the height of the rooms they recommended that the full requirements of the by-laws be not insisted upon.

Boswell's London House Threatened.

It is stated that Boswell's house in Great Queen-Street is likely to be demolished,

the site being required for a new building. The house is one of the best of the few remaining examples of seventeenth-century domestic architecture. The design has been generally ascribed to one of Inigo Jones's pupils. In view of the great interest, artistic and literary, which attaches to the house, the question of its preservation has been brought before the committee of the Society for the Protection of Ancient Buildings.

Prize Awards.

"Standard Examples of Architectural Details," offered as a prize by the proprietors of Technical Journals, Ltd., has been awarded to Mr. Percy Beck, a student in the Building Trades Department of the Leicester Municipal Technical Art School.

The same work, also offered by Technical Journals, Ltd., as a prize for competition among the students of the Department of Architecture, Leeds School of Art, has been awarded by Mr. S. D. Kitson, F.R.I.B.A., the assessor, to Mr. C. Bernard Chadwick, for work which included measured plottings of Bardsey Church, Yorkshire, and sketches of English Renaissance interior work.

Hampstead Garden Suburb Extension.

A new main thoroughfare has been planned to cross the proposed extension of the Hampstead Garden Suburb, in the district of Finchley. Starting from the present termination of Addison Way, near the Mutton Brook, it will pass on across the brook (on each side of which a broad open space will be left), skirt the large playing fields of about twenty-one acres, and open out into the proposed Market Square, where it will be joined by "Meadway," coming from near Golder's Green Station. Thence it will pass out into the Bishop's Avenue, which joins the Great North Road, within a few yards of East Finchley Station. The thoroughfare will be 60 ft. wide throughout, and will form an important connecting link, over a mile and a half long, between the Finchley Road and the Great North Road.

Messrs. Bovis's Dinner.

The annual dinner of Messrs. Bovis, Ltd., was held on Saturday, December 13th, in the Pillar Hall, Victoria Station, Westminster, when the chair was occupied by Mr. Sidney Gluckstein. The dinner proved to be the most successful in the history of the firm, whose prosperity, referred to by several speakers during the course of the evening, must be a source of gratification to all concerned. The attendance numbered about 200, and included several eminent architects. The programme and menu created a good deal of amusement. On the cover was pictured a forecast of architectural design and of building methods in 1920. The architect was shown preparing his design in an aeroplane, his work being simultaneously transmitted to the client in Paris, to the board-room in London, to the quantity surveyor somewhere else, and to the site in Germany, where the work of erection was proceeding wholly by machinery, to the apparent consternation of some observant strike pickets. The forecast may perhaps be somewhat too imaginative, but if it is correct as to the client, who is shown paying for the work (by express tube) before it is finished, one hardship of the builder will have been alleviated seven years hence. Speeches were interspersed with an excellent musical programme.

THE ZENITH OF THE GEORGIAN ERA.—1760-1820.*

BY A. E. RICHARDSON.

"Out of monuments, names, words, proverbs, traditions, private records and evidences, fragments of stories, passages of books and the like, we do save and recover somewhat from the deluge of time."

Francis Bacon.

THE sixty years' reign of George III. reveals one long account of progress, consolidation, and reform. Wars there are and rumours of war. England suffers humiliation at the hands of the American colonies and submits to separation. She stands quivering aloof during the French Revolution; to enter the arena and engage in mortal combat with the mighty genius of Napoleon; to recover after the prolonged struggle and enjoy a century of unparalleled prosperity. The courtly aristocracy loses its direct ascendancy, the patricians are merged with the merchant princes. Politics absorb the attention of all society; groups of statesmen rise and fall. Chatham is succeeded by Bute; Pitt at the age of twenty-four accepts the reins of office and leads the country through the years of peril; Grattan's Irish administration is dissolved by the Act of Union; Captain Cook circumnavigates the world and explores the coast of Australia. The triumphs of Wolfe and Rodney are consummated in the victories of Nelson and Wellington. In literature Dr. Johnson, Burke, Goldsmith, Gray, and Robert Burns rise to delight their own and future generations. Dr. Johnson and Sir Joshua Reynolds found the Literary Club. Mail coaches are established and internal communication is improved. Watt patents the steam engine and calls into being a new force. In the realm of the stage, Garrick, Siddons, and Kean take the theatre by storm, and Sheridan acts as entrepreneur for his own plays. The coffee houses are changed into clubs.

The foundation of the Royal Academy, in 1768, marked a turning-point in the history of English art; Reynolds, Gainsborough, and Romney secure the portraiture of the day, while George Morland tramps the country; Wilton, Banks, Bacon, Nollekens, and Flaxman lead the school of sculptors. In architecture Sir William Chambers, with Gandon for henchman, stems the tide of fashion for frippery ornament. Dance the younger secures immortal fame unto himself by erecting the walls of Newgate. Stuart and Revett return from Athens with "all Greece on paper." In the lesser spheres we must not forget Josiah Wedgwood, the producer of exquisite pottery, nor Thomas Chippendale, the cabinetmaker, working in St. Martin's Lane; while Hepplewhite, Manwaring, and Sheraton are names to conjure with. Through all this period of activity the kindly third of the Georges accompanies his fifteen million subjects.

The Brothers Adam.

In strict chronological sequence we should next study the influence and career of "Athenian Stuart," the man who was directly responsible for the Græco-Roman extension of the Palladian vernacular. Every architect at that period in practice was moved by the accurate researches made among the ruins of Hellenic splendour, and the publication of the first volume of the "Antiquities of Athens" caused a widespread desire for Greek finesse. But, as regards composition, this only affected detail; the Palladian vernacular was too logical, too deeply rooted

to submit to abrupt change. In no other architect's work did the delicacy of Greek detail manifest itself to the extent found in the works of the Adam brothers, yet it is a curious sort of Greek detail. For this, as well as for other more stringent reasons, the work of the ingenious Scotsmen must be regarded as forming part of the climax attained by the Palladian exponents. Briefly I shall attempt to describe the characteristics and achievements of the Adams, which formed the ornamental school of the age, which, although not opposed to the sterner doctrines of the monumental school, appears to modern eyes as a distinct issue. The works of the brothers Adam have in the past been subjected to much senseless criticism; unmerciful attack has been levelled at their architectural style as a whole. Ralph, writing in the eighteenth century, led the attack, especially against the Ranger's House in Hyde Park. Since that date every architectural critic has vaunted his superior taste by decrying the generic principles of this particular manifestation of architecture. Few have taken the trouble to enquire into its merits or even to ascertain if any exist. Yet we find that the brothers Adam introduced a greater refinement into the aspect of the London streets; they revolutionised the planning of houses; they brought the system of Classic vaulting to perfection; and were among the first to realise the necessity for a vista in the architectural treatment of a series of dissimilar rooms. They planned exceedingly well, both for comfort and taste. Applied in moderation, their system of ornament is of a charming character, and, considered in relation to the delicate tinting of wall surfaces—then the mode—it is perfectly appropriate. The beauty of the Adam manner is to be found alike in the splendid consistency of taste, which not only directed the shaping of an apartment, but which extended to the design of the minutiae with which the room was appointed. There are upwards of 8,000 original sketches in the Soane Museum, all from the pencils of Robert and James Adam. The year before Robert Adam died he erected eight public buildings and twenty-five of domestic character. With the exception of three, they do not rank as monumental structures. These three exceptions are the Admiralty screen, the University at Edinburgh, and the Assembly Rooms at Glasgow. Robert Adam had the courage to descend on London at a period when Lord Bute was in power, and at a time when the very name of Scotland was loathed. He entered upon the risky paths of building speculation, and, although at one time nearly involved in ruin, by means of a public lottery retrieved his position. In this way, Stratford Place, Oxford Street, Portland Place, Mansfield Street, Manchester Square, Fitzroy Square, Charlotte Street, and the Adelphi were erected. In the Mayfair district it is scarcely possible to traverse more than a few yards without coming across fresh evidence of the Scotsman's activity. The very needs of such building speculations demanded economy in materials. Portland stone was too expensive, so Adam introduced Liardet's patent cement, which blended harmoniously

with the fine London stock brick. It would be next to impossible to name any other buildings belonging to the late eighteenth century which possess such charming qualities of texture values. To the cultured eye the contrast of brick and stucco is both delightful and refined; in addition, it should be noted that the buildings erected by the brothers Adam, in Portland stone, are distinguished by the marble-like surface of the stone, an effect gained by careful polishing.

The Influence of the Adams.

The progression of a country's architecture begets several variations of the main theme. At the fount-head the waters gush forth guided by the hands of those in charge, and examined by coteries of critics and clients of unimpeachable taste. Purified by criticism and extolled by custom, they gain recognition as the source of the national style, the largest of the several supplies. In addition to this central stream, there are other and minor tributaries, which rise in remote districts, and their very existence is undreamt of elsewhere. These are the local schools of architecture of which the main stream takes but little, if any, account; yet the local streams are often similar in quality to the main stream—sometimes they grow to gigantic proportions and turn to swell the general tide. The publication of the Adams' "Works in Architecture," conducted, with the large numbers of craftsmen educated under their guidance, to the production of a vast number of minor activities throughout the country, tangible evidences of which are apparent to-day. Many of the great squares in Dublin were erected in this way. Gandon writes: "The houses of the gentry were generally inconvenient in their plans, having in most cases but two rooms on a floor, and these adapted for large parties." "The propensity for building was so general that all professions embarked in it, even the gentry were almost always their own architects; therefore skill in arrangement or good work was not to be expected." The architects of reputation in Ireland at this juncture were Cooley and Ivory.

We have seen that the works of the Woods of Bath, of Carr of York, of Sir Robert Taylor and James Paine, were all tending to the same elegance of manner as that produced by the brothers Adam. Contemporaneously there arose another group, who, without blindly following the originators, joined in the conquest of the world of fashion. Thomas Leverton was one of the foremost. His work at Bedford Square, without being an actual copy of Adam's work, followed its main characteristics, but a study of the detail shows the dissimilarity. At Stonehouse and Devonport, as in Plymouth, many of the streets contain rows of houses built after the Adam manner. There are many others of similar type at Bristol. Edinburgh contains the greatest evidence of the style.

Studies in Italy.

It is common knowledge that Robert Adam spent two years studying in Italy; he assisted Piranesi in making a plan of the Campus Martius at Rome, and with Clerisseau and two other expert draughts-

*The sixth of a series of lectures on "The Work of the English Architects of the Eighteenth Century and the Neo-Classic School of the Nineteenth Century," given at University College, Gower Street.

men visited Spalatro and spent five weeks measuring up the Palace of the Emperor Diocletian. The drawings were published in volume form in 1764. James Adam, who was associated with his brother Robert in nearly all the subsequent works, also travelled in Italy at a later day, and in 1761 he gives an interesting account of his arrangements with Clerisseau, who, together with Antonio Zucchi, had joined the party. There are many drawings by these talented artists, Zucchi and Clerisseau, on the walls of the Soane Museum. Robert Adam became so enamoured of the imaginary compositions of Classical architecture drawn by Clerisseau that he emulated them with considerable success. It is interesting to note the important influence exerted by this French draughtsman on Sir William Chambers and Robert Adam, and to study the wide divergence in the works of both architects. Hitherto, it has been the somewhat erroneous practice to attribute the individual manner of the Adam brothers to their study of Diocletian's Palace at Spalatro. This, on investigation, proves to be wrong. Their earnest study of all phases of the Antique, and especially of the frescoes remaining in the Baths of Titus, resulted in a facility for ornamental expression. The etchings of Piranesi, without doubt, were constantly referred to; Piranesi dedicated a volume of the "Magnificenza" to Robert Adam, but the real secret of Robert Adam's source of inspiration is to be found in the drawings of Andreas Coner. Of this accomplished Italian artist little is known except the fact that he flourished at the beginning of the sixteenth century and died in 1527. His collection of drawings was purchased by Robert Adam in Italy, and after Adam's death Sir John Soane acquired it. Coner's drawings are a summary of Adam's more sober manner. Turning over these priceless sheets, we feast on scraps of Roman planning, on delicious ornament, and other attributes of antiquity, drawn with an eye to freshness and vivacity. No wonder Robert Adam purchased Coner's book of drawings; from their study he gleaned many ideas—the enriched Doric capital, with elongated hypotrachelion, the frieze of Chimærae, the junctioning of apartments by means of spherical shapes, all are instanced in Coner's sure line. It was Robert Adam who introduced Pergolesi, the Italian, to England to superintend his plaster decorations, and the latter doubtless extended the invitation to others of his countrymen. Joseph Bonomi, the architect, was also invited to England, and appears to have worked both for the Adams and Leverton, afterwards being elected to the Royal Academy, much to the annoyance of Sir William Chambers and others. And at this period we shall come across other invading Italian artists, such as Bova and Valdie, both of whom worked at Stowe and afterwards found employment in Ireland. Angelica Kaufmann must not be forgotten; she was then at the height of her fame, and afterwards married Antonio Zucchi.

The instinct for Classic architecture was strongly implanted in the hearts of the Adam family. William Adam, the father of the celebrated brother, enjoyed a large practice in Scotland. John Adam, his first son, aided him and practised entirely in Scotland. The careers of Robert and James must be considered almost entirely as one. William Adam, the youngest son of the elder William, never appears prominently as an architect during the lifetime of his more famous brothers, but

seems to have been engaged in winding up and adjusting the building accounts of their various enterprises. The houses which formerly stood on the site now occupied by the Office of Woods and Forests were his work.

Although the works of the Adam brothers never quite attained to the monumental dignity of the work evolved by the masters of the monumental manner, the architects nevertheless achieved considerable triumphs. In the first place they enriched and improved London street architecture, combining terraces of houses into novel compositions. In regard to planning, they imparted academic distinction to every problem of domestic architecture which was presented to them. Their system of decoration was often carried to an extreme, but it invariably exhibits a distinctive charm which the modern reproducer of their work finds unattainable. The application of the system of Classic orders was so refined as to result, especially in the case of external architecture, in a loss of impressiveness.

The Chief Works of Robert and James Adam.

Robert Adam, who was born in 1728 and died in 1792, was educated at Edinburgh University. James Adam died in 1794. Following is a list of works, etc., in chronological order: Earliest sketch dated 1744; 1756—At Rome, made drawings for a Royal Palace (in Vol. I. Soane Collection; 1756-7-8—In Italy and Spalatro; 1759—Drawings and designs for circular towers, temples, and garden seats; 1760—Admiralty screen; 1759—Shardeloe in Buckinghamshire, the wings in 1761; 1761-2—Sion House; 1760—Lord Coventry's greenhouse at Croome; 1761—Mausoleum at Bowood; 1761—Drawings for Kedlestone; 1765—Main front; 1767—The remainder of the wings at Kedlestone (completion of the design began by Brettingham and Paine); 1767—Bute House and Lansdowne House, Berkeley Square, for Lord Bute; 1764—Published the Ruins of Diocletian Palace at Spalatro; 1764-7—Can Wood, Hampstead, for Lord Mansfield; 1766—The entrance screen at Sion House; 1767—Luton Hoo, for Lord Bute; 1768—The Adelphi improvement begun. A writer in the "Foundling Hospital for Wit" tells how—

"Four Scotchmen by the name of Adams, Who keep their coaches and their madams,"

Quoth John, in sulky mood to Thomas, 'Have stole the very river from us.'"

1768—The Deputy Ranger's lodge in the Green Park; 1770—Mansfield Street, Portland Place; British Coffee House in Cockspur Street; 1771—An elevation for Lord Temple at Stowe; the marble saloon by Borra; 1773—Sir Watkyn Wynne's house, St. James's Square; 1774—Ashburnham house, Dover Street gateway, since pulled down; 1774—Pavilion in Surrey for the Earl of Derby's Fête Champêtre; the Register Office at Edinburgh; 1775—Reconstructed Drury Lane Theatre; 1776—Mistley Church, Essex; Lewin House, near Welwyn; Harewood House, Hanover Square, since replaced by a hideous block of glazed tile flats; 1778—Portland Place; in this year published their works on Architecture in English and French; at the British Museum numerous other drawings exist, including designs for the entrances to London at Hyde Park Corner; 1778-1787—The infirmary at Glasgow and the Edinburgh University (the dome of the latter was added within recent years by Dr. Rowand Anderson); the Adams

gave designs for Boodle's Club, carried out by John Crumden (although there seems to be some doubt about this, and the authorship rightly belongs to the Adams); 1790—The east and south sides of Fitzroy Square, a fine example in Portland stone; Harewood House, Yorkshire, built by Carr of York and altered by Sir Charles Barry, received its interior decoration at the hands of the Adam brothers; Gossford House, East Lothian, is one of their last and best works; the Town Hall at Hertford and that at Chelmsford were both designed by Robert Adam; the whole district of greater Soho from Rathbone Place and Tottenham Court Road to Edgware Road, is one vast assemblage of the influence of their style. The list could be continued to cover many folio pages.

The names are legion of the lesser contemporaries who followed the lead of these talented architects; we must limit our study to three.

R. F. Brettingham.

Robert Furze Brettingham is the first. He is supposed to have been a nephew of the Matthew Brettingham who built Holkham. After travelling in Italy he returned to England in 1781, and in 1790 built the bridge in the park at Benham Place, Berks; in 1799 the entrance front of Saffron Walden Church. Brettingham built many gaols throughout the country, and that at Downpatrick in Ireland. For years he lived at No. 6, Berkeley Square, and probably designed the fine staircase in that house, as well as the large room at the back. His chief work in London is No. 80, Piccadilly. Brettingham was associated with the leading architects of the day, and was one of the original members of the Architects' Club.

Thomas Leverton.

Thomas Leverton, 1743-1824, was extensively employed in erecting town and country mansions both in England and Ireland. He built Bedford Square and lived at No. 13. 1782—Several villas in Hertfordshire and one near St. Albans; 1796—Banking house in Lombard Street; 1803—A sugar warehouse at New York, Grocers' Hall in the Poultry, a house in Lincoln's Inn Fields for H. E. Kendall, his patron.

Leverton largely employed John Flaxman to model for him, and there is every reason to believe that much of the figure decoration in the Bedford Square houses was modelled by Flaxman. Leverton employed Bonomi when he first came to England. Afterwards Leverton entered into partnership with Thomas Chawner, and submitted a plan for the lay-out of Regent's Park at the same time as John Nash.

James Lewis, 1751-1820, published "Original Designs in Architecture" in 1779. He appears as a designer of town houses, but achieved fame as the architect of Bethlehem Hospital, built in 1872. Additions were subsequently made by Hardwick and Smirke.

George Dance the Younger, R.A., 1741-1825.

While Chambers and the brothers Adam were about to enter into successful practice, the younger Dance was beginning his travels in Italy. We find him at Parma in 1763, gaining the gold medal of the Academy of Fine Arts for his design for a public gallery for painting and sculpture. Dance returned from his Italian tours to England in 1764.

The following is a list of his works, etc.: 1765-7—Allhallows Church, London Wall; 1768—Succeeded the Elder Dance as Clerk of the City Works; 1770-78—De-

signed Newgate Prison, which cost £130,000, and which he repaired after the Gordon riots of 1780; 1782-4—St. Luke's Hospital, Old Street; 1774-7—The Church of St. Alphage, London Wall; 1789—Façade of the Shakespeare Gallery, Pall Mall; 1787-91—Giltspur Street Compter or prison; 1789—Church of St. Bartholomew's the Less; 1793—Additions to St. Bartholomew's Hospital; 1795—Altered the Mansion House; 1796—Submitted to a Select Committee of the House of Commons his magnificent design for the improvement of the Port of London (a print of this design is in the R.I.B.A. collection); 1789—The south front of the Guildhall, lately restored by Mr. Sydney Perks, F.R.I.B.A.; 1805—The theatre at Bath; 1806-13—In association with James Lewis, the Royal College of Surgeons, Lincoln's Inn Fields; 1777—Finsbury Square, a delightful treatment of a series of houses (these are threatened with demolition); 1789-91—Alfred Place, Tottenham Court Road (recalling the design of the Port of London in miniature, recently mutilated by a series of hideous modern buildings).

Other Works.—Wilderness Park, Kent; the Grange, Abesford, Kent, Greek, Doric, and Palladian; alterations and additions at Bowood; 1790—Library at Lansdowne House; entrance vestibule at Caxton Hall; Ashburnham Place, Sussex; Stratton Park, Hampshire; and numerous other works.

Dance's own drawings show him to have been a man of great artistic ability. He had recourse to Piranesi's etchings for inspiration, but adhered closely to the Roman Palladian system of composition, old Newgate Prison and the Sessions Court at the side being his finest achievement.

In this structure the problem presented to the architect was one of extreme difficulty; a collection of cells, exercise yards, and offices had to be screened from the public gaze by means of a wall 50 ft. high and nearly 300 ft. long. Dance evolved an architectural screen of such superlative merit and of such poignant character as to mark him as a giant among his contemporaries. For sheer architectonic value the grim screen wall of old Newgate has never been surpassed.

NEW MUNICIPAL WORKS.

The Local Government Board have held or have decided to hold enquiries into proposed expenditure by public bodies as follows:—

Water Supply.—Chesterfield Rural District Council, for Barlow, Beighton, Coal Aston, Dronfield Woodhouse, Eckington, Holmesfield, Killamarsh, Staveley, and Unstone, no amount stated (December 4th); Winchcomb Rural District Council, for Alderton and Dixon, Bishop's Clere, Great Washbourne, Southam, Winchcomb, and Woodmancot ditto (December 9th); Spalding Rural District Council, £2,471 for Deeping Saint Nicholas (December 12th).

Sewerage, Drainage, and Sewage Disposal.—Fleet Urban District Council, £36,400; Walsingham Urban District Council, £3,000 for Fakenham (December 9th); Warwick Borough Council, £8,000; Harrogate Borough Council, £7,000 (December 10th); Darlaston Urban District Council, £15,000; Horsforth Urban District Council, to modify Newlay part of scheme, no amount stated (December 11th).

Street Improvements.—Hayes Urban

District Council, £5,700; Wimbledon Borough Council, £2,300 (December 8th); Ulverston Rural District Council, £2,890 (December 10th); Chertsey Rural District Council, £1,668 (December 11th); Sheffield Corporation, £7,123 (December 12th).

Various.—Spalding Rural District Council, housing, £2,360 (December 4th); Birmingham City Council, for erection of weights and measures offices, £3,563, and for underground sanitary convenience, £2,750 (December 8th); Chester Corporation, housing, £2,100 (December 9th); Ulverston Urban District Council, gas undertaking, £1,000, public hall, £3,000 (December 10th); Thornton Urban District Council, gas undertaking, £6,000; Northwold Parish Council, burial ground, no amount stated (December 11th); Oldbury Urban District Council, gasholder, £6,200 (December 12th).

EUPHRATES DAM COMPLETED.

The first section of the vast scheme of irrigation for Mesopotamia, designed by Sir William Willcocks and carried out by the firm of Sir John Jackson, Ltd., namely, the barrage on the Hindiye branch of the River Euphrates, is now completed.

Mesopotamia for many centuries was as fertile as the valley of the Nile, but the country has now become sterile, almost barren, half desert and half marshes. This change dates from the time of the Tartar invasion of the thirteenth century, led by Houlagon, who destroyed both the canals and all other works of civilisation in Mesopotamia. Since that period no Government had ventured to attempt the gigantic work necessary to preserve the land from the double scourge of alternate floods and droughts, which are equally destructive of agriculture.

It was not until 1909 that the Young Turk Government instructed Sir William Willcocks to proceed to Mesopotamia and draw up a scheme for the restoration of the ancient system of irrigation. At the end of 1910 Sir William presented his report, the work to be undertaken involving a total expenditure of about £15,000,000. The Ottoman Government, not being able to assume such a cost immediately, decided to proceed by progressive stages, and in February, 1911, the Minister of Public Works, Halladjian Effendi, concluded a contract entrusting the provisional beginning of the works to the firm of Sir John Jackson, Ltd.

In less than three years a considerable amount of work has been accomplished. By the construction of the Hindiye barrage the River Euphrates, which flows at the rate of 14,000,000 cubic metres of water per hour with a velocity of nine kilometres per hour, has been diverted from its former bed into a new canal 750 metres long, which has necessitated the excavation of a million cubic metres of soil.

R.I.B.A. Associates and Registration.

A memorandum, signed by Robert Atkinson, G. L. Elkington, K. Gammell, Edwin Gunn, and E. Stanley Hall, announces that an informal meeting of Associates has been arranged to take place at the Royal Institute for the exchange of views relative to the Council's proposals now before the members of the Royal Institute. The meeting will be held in the Great Gallery of the R.I.B.A. on Tuesday, December 30th, at 7.30 p.m., and all Associates interested in the question are cordially invited to be present.

SOCIETIES AND INSTITUTIONS.

SHEFFIELD SOCIETY OF ARCHITECTS.

Town Planning and Architecture.

On Thursday, December 11th, Mr. Patrick Abercrombie delivered a lecture to the above society, at Sheffield University, on "The Architectural Aspect of Town Planning." After a brief allusion to examples of Roman and Renaissance town planning, the lecturer remarked that the comparison of Renaissance town planning with ornamental gardening was significant, for there could be little doubt that the influence exercised by gardening on town planning was really great. All the features were evolved in gardens before they became the stock-in-trade of the town-planner. The earliest piece of "popular" town planning in Europe was represented by the Champs Elysées, Paris, which was originally purely a drive through the park for the French King to approach his private garden. When one called to mind the gorgeous effects of the avenues of Paris one was astonished to realise how many of them were purely garden features.

Of more purely architectural conceptions the most notable example was the Place de la Concorde. The Rue de Rivoli represented the most autocratic control that had ever been exercised architecturally over a modern street. Of less architectural importance, but of considerable interest, was the town planning of the west end of Berlin, carried out by Frederick William I., about the year 1730. The Unter den Linden was a Royal garden or park feature incorporated in the town.

The housing sequel to architectural planning was not manifest during the slow and sedate growth of the eighteenth century, but with the sudden industrial development of the nineteenth century, and in Germany particularly since 1870, it had had disastrous effects. The density of population per inhabited house in Berlin was extraordinarily higher than it was in London, Paris, Liverpool, and Sheffield. The traffic salvation in the English industrial towns had been found in the old country roads, which had given at least some lines of guidance in the building of the towns.

ARCHITECTURAL ASSOCIATION OF IRELAND.

Modern French Architecture.

At a meeting of the Architectural Association of Ireland, held on December 11th, Professor W. A. Scott, A.R.I.B.A., in the chair, a lecture on "Modern French Architecture" was given by Mr. P. Cart de Lafontaine, who mentioned that the present School of the Beaux-Arts, in Paris, was the descendant of the Academy of Painting, Sculpture, and Architecture founded by Colbert in 1648. The history of the succeeding period was briefly sketched, the lecturer pointing out the notable characteristics of modern French architecture as shown by the buildings of the last two centuries in Paris and the principal French cities. The variations of style were, he said, almost as considerable as was the case in this country and in England. The earlier period of the eighteenth century was succeeded by an age of architectural archæology, which, in turn, gave place to native art, in which was to be found a close approach to the principles of the earlier French architecture. Addressing himself to the practical side of present-day architecture in France, Mr. Cart de

Lafontaine said the two great institutions which exercised a strong influence on the style and character of the buildings, were the Société Centrale and the Société des Architectes Diplômés.

A vote of thanks was passed on the motion of Mr. Caulfield Orpen, R.H.A., seconded by Mr. Harold Brittain. A discussion followed in which Messrs. J. H. Webb, R. M. Butler, F.R.I.B.A., Henry Hill, A.R.I.B.A., of Cork, H. G. Least and others took part.

The president announced that Mr. T. E. Hudman had rejoined the association, and referred to the recent election of Mr. R. Caulfield Orpen as President of the Royal Institute of the Architects of Ireland. The honour was of peculiar interest to the A.A.I. as Mr. Orpen was their first president seventeen years ago.

The "Green Book."

From the above Association's "Green Book," which has just come to hand, we reproduce the accompanying portrait of Professor W. A. Scott, F.R.I.B.A., A.R.H.A., president for the session 1913-1914. Professor Scott gained most of his early architectural experience in the office of Sir Thomas Deane and Son, with which firm he served his articles. Before this, however, he had received some preliminary training in his father's office and at the Dublin School of Art. It was during the years of pupilage that his interest in ancient Irish architecture was first aroused; opportunities for first-hand study were afforded by his connection with works of repair at Mellifont Abbey, Slane,

Devenish Island, and other important remains. For a few years Professor Scott turned aside from this intensely interesting class of work to become an assistant in the office of the architect to the London County Council. Later he served with a number of private architects practising in the Metropolis.

The call of Ireland, however, became irresistible, and in 1902 Professor Scott returned to Dublin, where he began to practise for himself. His works include Spiddall Church, the O'Growney Mausoleum at Maynooth College, Enniskillen Convent Chapel, the Hostel at Lough Derg, additions to the residence of Lord Killanin and the Diocesan College, Galway, and several excellent examples of domestic work at the Garden Village, near Kilkenny. Although an exceedingly busy man, Professor Scott has found time to undertake frequent journeys abroad for the purpose of study, and the first-hand knowledge that he thus possesses of Continental work will doubtless prove of very considerable value to the Association. Professor Scott, it may be mentioned, also occupies the Chair of Architecture in the National University.

The "Green Book," which is very entertainingly written, contains a full survey of the work of the past session, and the arrangements for that of 1913-1914 (the seventeenth) are set out in detail. Mr. Joseph Holloway, a past president, contributes a clever article on the subject of "Caricature in Dublin," illustrated with some vigorous examples by his own hand.

The Association awards seven prizes yearly, the subjects, as set out in th

"Green Book," being: The Institute Prize (£10 10s.) for the best design for a fire brigade station and ambulance depot for a township of 30,000 inhabitants; the Dounes Bronze Medal (with an additional prize of £2 2s.) for measured drawings; the President's Prize (£2 2s.) for a design for a village hall; the Vice-President's Prize (£2 2s.) for a design for a village smithy and cottage attached; and two prizes in the class of design. Rambling, athletic, and golf clubs form features of the Association's recreative activities.

THE ROYAL TECHNICAL COLLEGE ARCHITECTURAL CRAFTSMEN'S SOCIETY, GLASGOW.

At the meeting of the above society held on Friday, December 5th (Mr. Thomas G. Gilmour, A.R.I.B.A., President, in the chair), Professor Charles Gourlay, B.Sc., A.R.I.B.A., delivered a lecture, illustrated by lantern slides, on "The Great Church of Santa Sophia, Constantinople." This church, he said, the greatest monument of the Byzantine style of architecture, was erected within the area comprised in the site of the ancient town of Byzantium, whence the style derived its name. He then showed illustrations of plans and interiors of Greek, Roman, Early Christian, and Byzantine buildings of earlier erection to allow of a true appreciation of the great advance made by the magnificently conceived plan of Santa Sophia, with its beautiful interior, upon those of any other buildings then in existence. Because of its size, the church was known as "The Great Church," and it was erected for the Emperor Justinian by the architects Anthemius of Tralles and Isidorus of Miletus, between the years 532 and 537, when the Byzantine style was at its culmination; hence its composition and details are of the choicest design and execution. The plan of the Church was fully studied, including its nave, aisles, narthexes, and gallery.

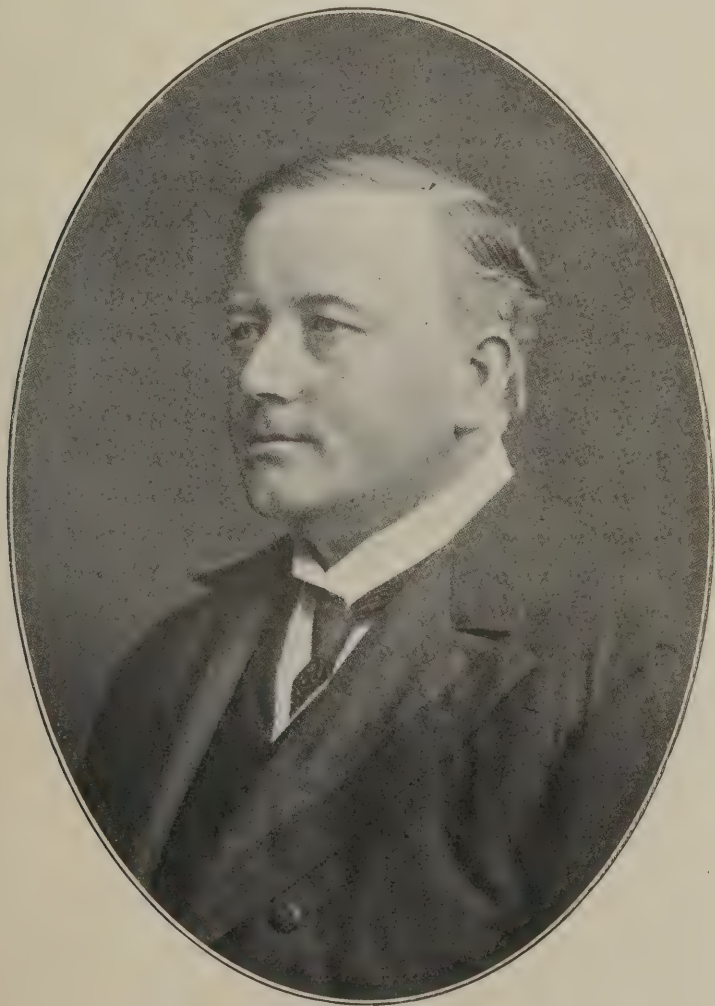
ABERDEEN ARCHITECTURAL ASSOCIATION.

Papers by junior members were read at the meeting of the above association held on Saturday, December 13th, the President, Mr. Harbourn MacLennan, in the chair.

The first was an illustrated account, by Mr. J. K. Currie, of C. F. Schinkel and his works. Schinkel, said the speaker, practised his art in Berlin for over thirty years from 1810 onwards; he was the foremost architect Germany had produced, and many of the finest buildings still existing in Berlin and its neighbourhood were built from his designs.

The second part of the meeting was occupied by a debate on the respective advantages of art school and office training for architectural students. The art school training was supported by Mr. Herbert H. Reid, who outlined the course laid down in the Aberdeen School of Art, where two years may be spent before entering an office. The advantage of such a training was that the whole of a student's time was devoted to the study of architecture and the allied arts and crafts, whereas a pupil in the office could only do the work that was prescribed for him by his employer, and had little chance of putting his own designs on paper.

Mr. John C. Mackenzie, defending office training, thought that the office and school should be worked more together, and that some time ought to be spent at the office during the first two years and



PROFESSOR W. A. SCOTT, F.R.I.B.A., A.R.H.A.,
President of the Architectural Association of Ireland, 1913-1914.

afterwards continued as part of the school training in the later years of apprenticeship. The first two years spent continuously at the art school tended to make a pupil regard himself as being a little above the routine work of an office. The old system of pupilage in a good office combined with a simultaneous art school training covered all the studies necessary to produce a first-class architect.

A vote being taken, the meeting was found almost unanimously to favour a combination of the two systems.

THE LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

A general meeting of the above society was held at the Leeds Institute on Thursday, December 11th, when Mr. G. Frederick Bowman occupied the chair.

A paper, illustrated by lantern slides, was given by Mr. T. E. Eccles, F.R.I.B.A., of Liverpool, the subject being: "A Holiday in the Val d'Aosta" (Northern Italy). The route described extended from Martigny by way of Cressier and St. Bernard's Pass over the Alps and down the Val d'Aosta by way of Ivrea, Biella, Crofa, Vezelay, Novara and finishing at Dijon. The slides showed many excellent compositions from a pictorial point of view, and included examples of architectural work of a high standard. A vote of thanks to the lecturer was proposed by Mr. G. W. Smithson, A.R.I.B.A., and seconded by Mr. H. S. Chorley, F.R.I.B.A.

THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

The seventy-fourth annual general meeting of the above institute was held in Dublin on Wednesday, December 10th.

The Hon. Secretary having read the report of the Council for the year 1913, Mr. C. H. Ashworth, in moving the adoption of the report, said it chronicled the progress and prosperity of the Institute. He noted the changed conditions of membership of the Institute, and he urged the younger members to support the examination, which was established mainly with the view of affording an incentive to students in Ireland. The adoption of the report was seconded by Mr. G. C. Ashlin, supported by Mr. O'Brien Smyth and Mr. R. Stirling, and passed unanimously.

Mr. Robert Stirling and Mr. E. H. Morris were elected auditors for the ensuing year.

Mr. Joseph Geoghegan was nominated by the Architectural Association of Ireland to represent that body on the Council of the Institute.

The President read his valedictory address, and in returning thanks congratulated the members on the results of two recent competitions, which showed that Irish architects are capable of designing buildings which will be a credit to their country. He also referred to the high marks obtained at the examination for studentship, which foreshadowed a high standard of qualification in the coming members.

LABOURER'S COTTAGE, BURGHCLERE, NEAR NEWBURY.

The labourer's cottage, shown in the accompanying illustration, is now in course of erection from the design of Mr. Francis Bacon. It is built of 11-in. hollow walls with red brick facings, the roof being covered with hand-made sand-faced tiles. All members of the framing are 4 in. by 3 in. The cost was £200.

SPECIAL LEGAL REPORTS.

Builders and Unlicensed Hoarding: Appeal against a Conviction.

Higgs and Hill, Ltd., v. Stepney Borough Council.

December 15, King's Bench Division. Before Justices Channell, Ivory, and Atkin.

This was an appeal by Messrs. Higgs and Hill, Ltd., builders, against a conviction for erecting a hoarding without a licence.

Mr. Ryde, K.C. (for the appellants), said the matter came before their Lordships on a case stated by a metropolitan police magistrate under the Metropolis Management Act, 1855. The points raised had reference to three sections of the Act. By the first every person building a house must erect a hoarding, and failure to do so would render him liable to a penalty. That section, however, said nothing about obtaining a licence from a local authority. The next section dealt with the erection of hoardings for stacking bricks, making mortar, etc., and required a person so using the footway to obtain a licence from the borough council or local authority. That section contained no penalty clause, but one was found in the third section, and the question to be discussed was whether the third section, which imposed a penalty for erecting a hoarding without a licence from the borough council, related to the first section, which said nothing about obtaining a licence. Counsel pointed out that, assuming the builders would otherwise be liable under the sections, the contention raised on their behalf was that the building in question, with a hoarding round it, was erected under powers of the L.C.C. as an education authority. There was an Act of 1911, proceeded Mr. Ryde, which was passed to meet the difficulty of such control by the local authority and the Board of Education, and which provided that, where a building was erected in accordance with plans passed by the Board of Education, the provisions of a local Act relating to new buildings should not apply. A question in this case was whether

that exemption was wide enough to include the case of a duty to erect a hoarding round a new building. The L.C.C., in this matter, had employed the appellants to demolish certain school premises in Underwood Street, Stepney, and they were fined 10s. and two guineas costs by Mr. Chester Jones for erecting a hoarding without a licence. Counsel contended that of the three sections to which he had referred, Sections 122 and 123 were not intended to relate to Section 121.

Without calling upon counsel for the local authority, their Lordships dismissed the appeal, Mr. Justice Channell remarking that, in the opinion of the Court, there was nothing in the points raised which would justify their Lordships interfering with the decision of the magistrate.

Sewer or Drain: Important Decision.

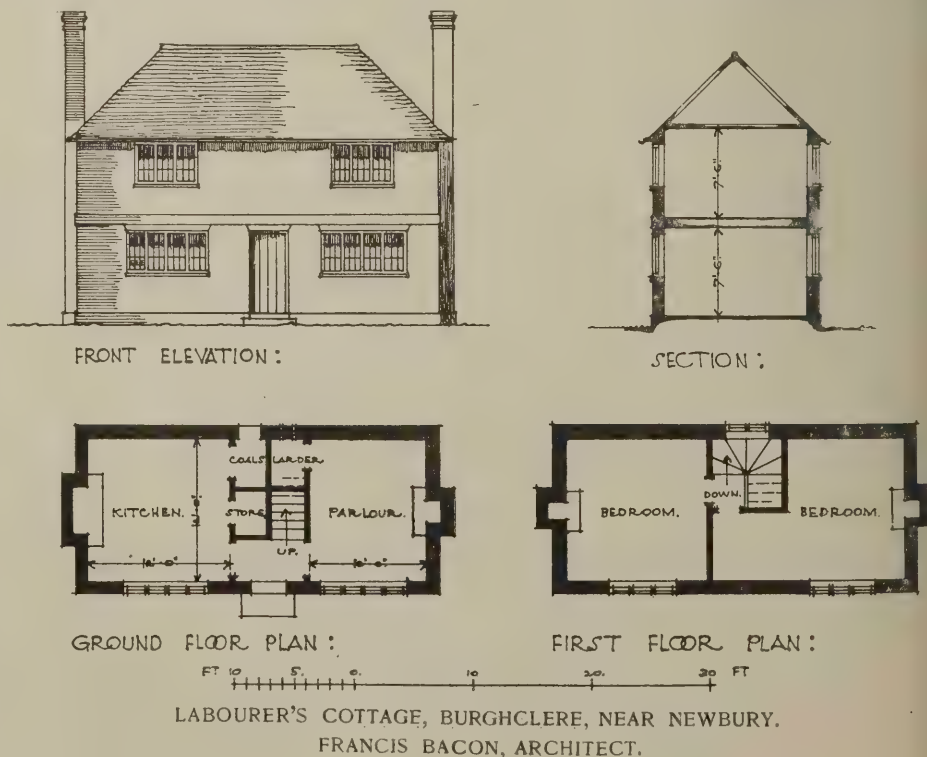
Kershaw v. Paine.

December 16, King's Bench Division. Before Justices Channell, Ivory, and Atkin.

This matter came before the Court on a magistrates' case, and was with reference to the Metropolis Management Act, 1855. It was an appeal from a decision of the magistrates dismissing a summons taken out by the Hampstead Borough Council in respect of an alleged nuisance, and the point raised by the case primarily was whether the pipe through which the nuisance occurred was in law a drain repairable by the owner of the house, which was situate at Sumatra Road, Hampstead, or was a sewer repairable by the local authority. The owner contended that it was a sewer repairable by the council, and the council, on the other hand, said it was a drain and therefore repairable by the owner.

Mr. McMorran, K.C., for the council, said this was one of those experiments in which the suggestion was that the pipe was a sewer. Counsel argued that the magistrates had not comprehended the law on the subject, as it was clear that the pipe in question was a drain, which received the rain water from the house, and was therefore repairable by the owner.

Mr. Micklethwait, for the owner, contended that the pipe in question was a



sewer, as it received the rainwater of more than one house, and that the magistrates arrived at a right conclusion.

Mr. Turner, with Mr. McMorran, K.C., having replied,

The Court dismissed the appeal.

Mr. Justice Channell said this was an old question which had often troubled the courts. He did not suppose that he should live to see the time when the legislature would interfere and tell the courts what was a drain and what was a sewer. So they would have to go on and do the best they could as the cases came before them. His difficulty in this case was in regard to the rainwater. However, he felt bound by the decision of the Court of Appeal in *Sells' case*. But for that he would have decided the other way.

Justices Avory and Atkin concurred, and the appeal was dismissed.

COMPETITIONS.

Broad Walk Entrances, Kensington Gardens.

The London Society offers as a prize the gold medal of the Society and £15 for the best design for the improvement of the north and south entrances to the Broad Walk of Kensington Gardens, London.

The fullest liberty is offered to competitors with regard to the alteration of existing conditions and the nature of the architectural and garden treatment. The extent to which the proposals shall apply is not limited, provided that, in accordance with the promoters' intentions, both entrances to the Broad Walk are dealt with. It is suggested that in any case the scheme should include handsome gates. Emblematical ideas might be embodied in the sculpture, etc., such as the progress of Queen Victoria's reign and the peace of King Edward's.

All schemes to be eligible must be delivered on or before Wednesday, March 11th, 1914, at the office of the Royal Institute of British Architects, addressed to the Secretary, 9, Conduit Street, Hanover Square, London, W. Any drawings submitted by two or more competitors are not eligible for the prize.

The award will be made at the request of the London Society by a committee appointed by the Council of the R.I.B.A.

Coventry Technical Institute.

We have received the following communication from the R.I.B.A.:

Members and Licentiates of the Royal Institute of British Architects must not take part in the above competition, the conditions not being in accordance with the published regulations of the Royal Institute for architectural competitions.

LIST OF COMPETITIONS OPEN.

JANUARY 2.—ROYAL EXCHANGE, MANCHESTER.—The Board of Directors of the Manchester Royal Exchange, Ltd., invite designs for additional new buildings and alterations on the existing Exchange buildings. Mr. James S. Gibson, F.R.I.B.A., will act as assessor. Particulars, instructions, and plans will be forwarded on application to Richard J. Allen, Master, the Manchester Royal Exchange, Ltd., Manchester, accompanied by a cheque for £2 2s.

JANUARY 2.—GOVERNMENT BUILDINGS, OTTAWA, ONTARIO.—Architects are invited to submit sketch designs in a preliminary competition for the erection of departmental and courts buildings. Six will be chosen by the assessors, the authors of which will be invited to take part in a final

competition, for which the five unsuccessful competitors shall each receive an honorarium of \$3,000. The competition is limited to British subjects practising in the British Empire. Mr. T. E. Collcutt, Mr. J. H. G. Russell, and Mr. J. O. Marchand will act as assessors. Conditions for both competitions may be had on application to R. C. Desrochers, Secretary, Department of Public Works, Ottawa, and at the office of the High Commissioner for Canada, 17, Victoria Street, London. (Summary of conditions, p. 326 in our issue of September 24th.)

JANUARY 20.—MASONIC TEMPLE, TORONTO.—Designs are invited for a new Masonic Temple to be erected at Toronto. Prizes of \$750 (£156), \$500 (£104), and \$250 (£52) will be awarded in addition to the first prize, which will be the commission for designing and supervising the erection of the building. The estimated cost is £51,400. Conditions may be inspected at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall Street, E.C.

JANUARY 31.—SCHOOL FOR DEFECTIVE CHILDREN, GLAKE HALL, NEAR DURHAM.—The Education Department of the Durham County Council invite designs for a school for defective children at Glake Hall. The Education Committee will assess the competition. Author of selected design will be appointed architect. Premiums of £20 and £10 will be paid to authors of designs placed respectively second and third. Designs to be sent, by January 31st, to the Clerk of the Education Committee, Shire Hall, Durham. Members and Licentiates of the R.I.B.A., and members of the Society of Architects are advised that the conditions of this competition are at present unsatisfactory. (Particulars in our issue of December 17th.)

JANUARY 31.—SECONDARY SCHOOL, BATH.—Designs are invited for a new mixed school at Bath, to accommodate 250 children. Mr. Henry T. Hare, F.R.I.B.A., is the assessor. The author of design placed first will be appointed architect to the school unless it be found that the cost will exceed his estimate by more than 10 per cent. If the work be not proceeded with within twelve months of the award the architect will receive the sum of £100, to form part of his commission. In the event of the scheme being abandoned, he will receive the further sum of £25 in full discharge. The author of design placed second will receive a premium of fifty guineas. Designs to be sent, by January 31st, to the Town Clerk, Guildhall, Bath. (Particulars and site plan in our issue for December 3rd.)

FEBRUARY 1.—MUNICIPAL TECHNICAL INSTITUTE, COVENTRY.—Designs are invited for a technical institute to be erected, at a cost of £25,000, in Pool Meadow, Coventry. Subject to a satisfactory arrangement, the author of the accepted design will be appointed architect at an inclusive fee of £1,000. The R.I.B.A. and the Society of Architects have advised their members that the conditions are unsatisfactory—see note above. (Summary of accommodation in our issue for November 5th.)

FEBRUARY 15.—SAVINGS BANK, VERONA.—The Savings Bank of the City of Verona invite designs for a new building to be erected on an area bounded by the Piazza delle Erbe, Via Camera di Commercio, Via Portici, and Via Mazzini. Premiums: (1st) Lire 30,000 (about £1,200) and (2nd) Lire 15,000 (about £600). The President of the Savings Bank and four others, to be appointed by the Council of Admini-

stration, will act as assessors. Applications to be addressed to the seat of the Institution, Via Garibaldi No. 1. (Site plan and summary of conditions, p. 221 of our issue for August 27th.)

MARCH 20.—PUBLIC ART GALLERY AND MUSEUM, BELFAST.—Designs are invited for a new public Art Gallery and Museum, to cost not more than £75,000. The author of the accepted design will be appointed architect at the usual rate of commission. Authors of designs placed second, third, and fourth will receive premiums of £100, £75, and £50 respectively. The assessor is Mr. John J. Burnet, LL.D., A.R.S.A. (Site plan and summary of accommodation in our issue for November 19th.)

MAY 4.—ARCHITECTURAL TREATMENT OF ST. PAUL'S BRIDGE.—The Corporation of the City of London invite designs from British architects for the architectural treatment, in masonry, of St. Paul's Bridge, and for other works. Sir William Emerson, P.P.R.I.B.A., has been appointed assessor. Premiums of £300, £200, and £100 will be awarded. The author of the design placed first will, unless his scheme prove too costly, be appointed architect. If the work be not proceeded with within twelve months from the notice to prepare working drawings, the architect will receive the sum of £400, which sum will later merge into his commission. Messrs. Mott and Hay will be responsible for the engineering portion of the construction, foundations, etc. Quantities will be taken out by a surveyor appointed by the committee. (Particulars and plans published in our issue for December 17th.)

NO DATE.—NEW OFFICES FOR THE BOARD OF TRADE, ETC., LONDON.—The Commissioners of H.M. Works and Public Buildings invite preliminary sketch designs in competition for new offices for the Board of Trade, etc., to be erected on a site in Whitehall Gardens, London, S.W. From sketch designs submitted the authors of not more than ten designs will be selected to submit designs in a final competition at an honorarium of £300 each. The assessors are Mr. Reginald Blomfield, M.A. (Oxon.), A.R.A., P.R.I.B.A., Mr. Ernest Newton, A.R.A., and Sir Aston Webb, C.V.O., C.B., R.A. Conditions of the competition, which is open to all British subjects, with full particulars of the accommodation required and plan of site, can be obtained on application to the Secretary, H.M. Office of Works, etc., Storey's Gate, London, S.W., and deposit of £1 is. (Site plan and summary in our issue of September 3rd.)

OBITUARY.

Mr. R. D. Sandilands, F.R.I.B.A.

The death occurred on Thursday, December 11th, at his residence in Pollockshields, of Mr. Robert Douglas Sandilands, F.R.I.B.A., an eminent Glasgow architect. Mr. Sandilands, who settled in Glasgow about forty years ago, serving for six years in an architect's office, spent some time in Paris, studying under the late Professor Gaudet. Returning to Glasgow after five years of Continental experience, Mr. Sandilands began professional practice with Mr. John Thomson (a son of "Greek" Thomson), with whom he was jointly responsible for a number of important buildings, including Gartloch Asylum, Stobhill Hospital, Govan Town Hall, and Glasgow Parish Council Offices. Mr. Sandilands was elected a Fellow of the R.I.B.A. in 1906.

PROJECTED NEW WORKS.

Docks Extension, Leith.

It is proposed to extend Leith Docks at a cost of £300,000.

Baths, etc., Dunoon.

The Dunoon and Kilmur School Board propose to erect bath and gymnasium at Dunoon Grammar School.

School, West Bromwich.

West Bromwich Education Committee have decided to apply for sanction to a loan of £16,518 for the erection and equipment of new schools at the Cronehills.

Hospital, Irvine.

The Irvine Town Council have appointed Messrs. J. and J. Armour, architects, Irvine, as architects for the new hospital, which is estimated to cost £5,000.

Buildings, Lewisham.

Plans have been passed by the Borough Council for a parish hall, Brockley Rise, on the application of Messrs. Thomson and Beveridge, and for a saw-mill in Mill Pond, for Messrs. B. Horton and Son.

Reservoir, Keith.

Mr. Doig, civil engineer, of Elgin, has been instructed by the Keith T.C. to prepare plans for a new reservoir at Cuthil, in connection with the water supply for Cairnie.

Buildings, Middlesbrough.

Plans have been passed, among others, for the erection of a motor garage, in Grange Road, and of a new building in Cannon Street, to be available as a cinematograph hall.

Town Planning Scheme, Totteridge.

The village of Totteridge, in Hertfordshire, has recently been added to the urban district of Barnet, and a scheme is being promoted for laying it out under a town-planning scheme.

Art Gallery, Nuneaton.

The offer of Councillor E. F. Melly, a former Mayor of Nuneaton, to build an art gallery and museum on the condition of the Council providing a suitable site has been accepted.

Cottages, Farnborough.

Farnborough Town Council have decided to erect thirty artisans' cottages to meet the housing accommodation difficulty due to the demands of the Army Aircraft Factory.

Court House, etc., Giffnock.

Plans have been passed for the erection of a new Court-house and police buildings, Giffnock, for the County Council of Renfrewshire. The architect is Mr. Chas. Davidson, Paisley.

Town Planning, Honiton.

An inquiry has been held by the L.G.B. into the application of the Honiton R.D.C. for authority to prepare a town-planning scheme over an area of ground within the parishes of Salcombe Regis and Sidbury.

Temporary Building, Aldwych.

A portion of the Aldwych site in the Strand has been secured by the Salvation Army for the erection of a temporary building with a seating capacity of five thousand, to be used in June next for the Army's International Congress.

Medical Baths, etc., Torquay.

Torquay Corporation, having projected a scheme, to cost £15,000, for the provision of medical baths and a swimming bath, have now decided to spend £700 in a third

extension of the concrete bathing platform on Torre Abbey beach, and to erect a fish market.

Library, Reading University.

Reading University College authorities have decided to devote the £10,000 left them by the late Right Hon. G. W. Palmer to the erection of a library, which will form part of the buildings of the new university and a permanent memorial to the late Mr. Palmer.

Houses, etc., Southend.

Plans for 131 houses, a cinema (in Elm Road, Leigh), and a school-church (in Leigh Road East, for the Rev. A. Bell) have been passed by the Town Council. The L.G.B. have sanctioned the borrowing of a further sum of £3,200 in respect of the swimming bath on the Western Esplanade.

Building Developments, Irvine.

The establishment of the new shipbuilding yard of Messrs. Harland and Wolff has rendered necessary a considerable increase in housing accommodation. The erection of a large model lodging-house is also contemplated in the neighbourhood of the yard, and the Town Council have arranged for the selling of the present hospital, which is uncomfortably close to the new works, to the shipyard people, and to build a new hospital for the town, to cost about £6,000.

Buildings, Aberdeen.

The Plans Committee of the Town Council have sanctioned plans for the following new buildings in Aberdeen: Alterations in connection with the Royal Infirmary Administrative Block, Woolmanhill, per Messrs. Smith and Kelly, architects. Alterations at Westburn House, Westburn Park, for the Town Council, per the burgh surveyor. Alterations in connection with Nos. 13 and 14, Dee Street, for Messrs. Lumsden and Davidson, per Messrs. Kelly and Nicol, architects. Alterations in connection with Morningside House, Morningside Road, for Mrs. Greig, per Messrs. Jenkins and Marr, architects.

LONDON MASTER BUILDERS' ASSOCIATION.

The ordinary meeting of the Council was held at the offices of the Association on Thursday, December 18th, when the President, Mr. Walter Lawrence, jun., occupied the chair.

There was a large attendance, and very important business was considered.

Since the last ordinary meeting, on November 20th, two special council meetings have been held for the purpose of considering what action should be taken in dealing with the strikes in the building trade during the past six months, which have been in distinct contravention of the rules quite recently entered into with the various trade societies.

As a result of the deliberations a special general meeting of members of the Association was held on Monday, December 15th, when a decisive course of action was decided upon.

The Council, at its meeting on Thursday, recognising the urgency of the matter, resolved unanimously to request the attendance of representatives of the nine societies with whom working rule agreements exist to a conference, whereat they will be asked to give the necessary guarantee required.

The reports of the Law and Parliamentary, Finance, and Special Committees were adopted.

The professional auditors were duly appointed to audit the accounts for the year ending December 31st.

A number of new members were elected, and applications for ordinary membership were received and recommended to the next Council for election.

Correspondence and trade matters were duly considered.

R.I.B.A. FINAL EXAMINATION.

Alternative Problems in Design.

The following particulars relating to the 1914 Problems in Design are given in the current issue of the R.I.B.A. Journal:

1. The drawings, which should be on uniform sheets of paper of not less than Imperial size, must be sent to the Secretary of the Board of Architectural Education, Royal Institute of British Architects, 9, Conduit Street, W., on or before the dates specified below.

2. Each set of drawings must be signed by the author, and his name and address, and the name of the school, if any, in which the drawings have been prepared, must be attached thereto.

3. All designs, whether done in a school or not, must be accompanied by a declaration from the student that the design is his own work and that the drawings have been wholly executed by him. In the preparation of the designs the student may profit by advice.

4. Drawings for subjects (a) are to have the shadows projected at any angle of 45 degrees in line, monochrome, or colour. Drawings in subjects (b) are to be finished as working drawings. Lettering on all drawings must be in a clear scholarly character.

Subject XIII.

(a) A large fireplace in the main reception room of a town hall.

Drawings Required.—Detail drawings to $\frac{3}{8}$ -inch scale. Important details to 1-inch scale.

(b) A single-span foot bridge over a stream 40 ft. wide, in any material that the candidate may select.

Drawings Required.—Detail drawings to $\frac{3}{8}$ -inch scale. Important details to 1-inch scale.

Subject XIV.

(a) Council offices for a small town on an open site. The cost of the building not to exceed £15,000.

Drawings Required.— $\frac{3}{8}$ -inch scale and $\frac{1}{2}$ -inch.

(b) Completion of a tower by a lead spire. The tower is 24 ft. square outside measurement, 60 ft. high to top of parapet. (Cornice and parapet not existing, but to be provided.) There is a newel staircase in the centre of one side of the tower.

Drawings Required.— $\frac{3}{8}$ -inch scale and $\frac{1}{2}$ -inch.

Subject XV.

(a) A museum (detached) in the park of a country town. The cost of the building not to exceed £15,000.

Drawings Required.— $\frac{3}{8}$ -inch scale and $\frac{1}{2}$ -inch.

(b) An open timber roof to a school hall, span 45 ft. The hall is 80 ft. long. One bay only to be shown.

Drawings Required.— $\frac{3}{8}$ -inch and important details to 1-inch scale.

Dates for Submission of Designs in 1914.

	Subject XIII.	Subject XIV.	Subject XV.
United Kingdom ...	28 Feb.	30 April	30 June
Johannesburg ...	30 April	30 June	31 Aug.
Melbourne ...	30 May	31 July	30 Sept.
Sydney ...	30 May	31 July	30 Sept.
Toronto ...	31 March	30 May	31 July

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(From Piranesi.)

THE ARCHITECTS' & BUILDERS' JOURNAL.

DECEMBER 31, 1913.

CAXTON HOUSE, WESTMINSTER.

VOLUME 38 No. 990.

Back to Practicality.

WHILE "the so-called battle of the so-called styles," as some veritable Gallio to these things has cynically called it, goes on vigorously but without fury, each side being rather inclined to adopt the mild tactics of Fabius Cunctator, more practical issues are at some hazard of being unduly neglected. It may be that the Registration question comes into the category of practical politics, and that the turn it has now taken, involving as it does so many considerations that are of vital importance to the profession, is a genuinely practical issue; but that, again, is a matter that, while it is likely to drag on interminably, one would like to see settled out of hand, and, together with the almost painfully polite quarrel between the Classicists and the Gothicists, lulled to rest.

For while the inmates are exhausting their energies on domestic squabbles that are relatively paltry, the house is steadily burning over their heads. While architects are concentrating their intellects and exhausting their emotions on style and organisation, the engineer is acting to such purpose that presently the victors in these encounters will find that the spoils are missing.

Whether the great buildings of the immediate future are to be of Gothic or of Classic design seems to be a purely academic issue in comparison with the all-important fact that, anyhow, most of them will be constructed of concrete and steel—a consideration that gives pause to the Gothic side of the argument, which falls faint at the bare supposition of a Gothic structure in reinforced concrete. On the other hand, while it is difficult to imagine this material as a supreme medium of cold Classicity, yet there is no denying its ready adaptability to Classical or Renaissance design, for which reinforced concrete construction, with its tendency to mass and simplicity, and its facile adaptation to the shaping of dome, arch, and cornice, may be said to show a natural affinity.

The plain fact is that reinforced concrete construction is being neglected by the architect to the peril of his profession. In this as in other matters, he is allowing his fastidious artistic temperament too large a licence. On the other hand, the engineer, who adopted that profession because he is a practical-minded person, too well skilled in "the low cunning of mathematics" to be over-squeamish of mere external appearance, too resourceful to be appalled by the presentation of fresh problems for solution, goes forward with joy to meet new conditions from which the architect, trained to reverence tradition and precedent and to distrust novelty, shrinks back with shuddering timidity, to his own undoing.

The traditions of architecture are overpowering. They attract to the profession youths of artistic temperament and ambition; and even those who stray into it with no better endowment than "base mechanical" minds become enervated by the atmosphere in which they find themselves, and prate of art the more glibly because of their inability to ensue it. Some of these find salvation in surveying; others have had the good

sense to study reinforced concrete construction, which is nevertheless almost monopolised by specialists who have been trained as engineers rather than as architects. How many architects are numbered among the members of the Concrete Institute?

Fortunately, the engineer is developing a sense of his own architectural shortcomings. Whereas the old type of engineer (not by any means extinct, though dwindling) had the vanity to feel insulted at any suggestion that a mere architect could help him, the modern man (and of all men the modern engineer is the most facile and adaptable) has the grace to admit that his training does not fit him for architectural expression, and that where this is required an architect is the proper person to impart it. Engineering arrogance is dying out; and if the architect will come down from the clouds, mutual advantage must ensue. He and the engineer will meet on common ground but no longer as antagonists.

Reinforced concrete construction is now long past the experimental stage at which stability with economy was the chief problem, whose solution was naturally, if weakly, relegated to such as were cunning in calculation—that is to say, mainly to engineers. From these have sprung the specialists. While the system was on its trial, and while the essential data were in course of formulation, the architect was perhaps wise, considering the character of his training, to hold a watching brief. Now that the fundamental data have been ascertained, he is static in his attitude of aloofness, although he is constantly being assured that the principles are not really difficult to master, and although he has the evidence of his senses that architectural treatment is now the one great desideratum, and that the volume of reinforced concrete work is rapidly becoming so formidable a menace to the business side of the profession of architecture. In plain words, the architects are in danger of losing about two-thirds of the work because they lack the alertness with which the engineer creates, or adapts himself to, changing conditions.

If reinforced concrete construction follows the normal course, it will in due time pass out of the hands of specialists, and into the hands of the general practitioner. If the general practitioner happens to be, as a rule, an engineer rather than an architect, that will be partly the result of the public conviction that the engineer is the right man to do the work, but it will be chiefly the consequence of the apathy of the architect in allowing his opportunities to slip through his hands. The greatest need of architectural education to-day is more intense concentration on structural engineering. Not that art and scholarship are to be neglected—only that the present exaggerated stress on them should be abated. "These things ought ye also to do, and yet not to leave the other undone." It is a matter for the most serious consideration of the responsible educational authorities, who must brace themselves to break away from some of their most cherished but unfortunately rather enervating traditions, and pay more attention to the modern scientific aspects of building.

G.

The Menace of the Lockout.

MASTER builders seem to have lost patience with labour disloyalty. It has been stated through a news agency that the London Master Builders' Association are resolved upon a general lockout unless satisfactory guarantees are forthcoming that the agreements entered into between employers and workmen shall be in future strictly carried out. Although the prospect of a general lockout is not more exhilarating than the threat of a general strike, there is unfortunately no difficulty in understanding that the employers have grown very tired of being constantly on the defensive. Constant aggression appears to be the only form of constancy of which the workmen are capable, and the alacrity with which, when it suits their purpose, they repudiate the agreements of "collective bargaining" has become a scandal of such magnitude as to threaten the existence of that bland method of preserving industrial peace. For, naturally enough, the employers grow heartsick of the dreary farce of arriving at agreements which, bitter experience has taught them, have but a slender chance of being loyally observed by the other party. Intoxicated with a new and largely illusory sense of power, the rank and file of the unionists are everywhere proclaiming an anarchy that must ere long result in internal disruption. Encouraged to cultivate rebellion as a principle, and disloyalty as a virtue, they are oblivious that rebellion has its inevitable nemesis in reaction. Inveterate incapacity for the elementary honesty involved in adherence to an honourable understanding must sooner or later discredit trade unionism to the point of extinction.

A Specification Question.

ARCHITECTS and builders might with mutual advantage confer more freely with respect to certain matters about which misunderstanding seems to be perpetual. There is, for example, the point raised at a recent meeting of the Aberystwyth Education Committee. A member formally called attention to "the fact that contractors were bound by the specifications to purchase certain goods at particular places specified by the architect"—a statement that is not quite accurate, as the architect here, as elsewhere, would insist only on the quality or character of the goods, and would consider any suggestion that a contractor might have to offer as to the place of purchase. The member complained that builders and small contractors "did not have any chance in submitting estimates for school repairs, etc., because the architect named certain firms in his specifications from whom the contractors were bound to purchase the goods, though they could purchase them cheaper elsewhere." As the architect remarked at the meeting, the member seemed to be under a misapprehension. It is not—or it should not be—to the benefit of the contractor to purchase cheaper goods; for, as the architect explained, "if the contractor substituted an article worth 8s. 6d. for one that was worth 10s. 6d., the difference was deducted from the contractor in settling up the contract." This is the general practice; and unless it were so, a contractor might have occasionally more interest than is quite wholesome in obtaining the goods from a dealer of his own choice. Even where there is no question of a commission, there is sometimes a system of running accounts, and it is obviously undesirable that this should have any influence on the transaction. But the gist of the matter is that, as the Aberystwyth architect observed, "it would be intolerable if contractors were to dictate to the architect what materials he should or should not specify," since it is he who is responsible for their quality. At the same time, most specifications give the contractor the option of going where he pleases for common goods, and thus

much of latitude may sometimes result in the contractor's making a better bargain (not for himself, but for the building owner) than the architect, more aloof from the higgling of the market, could suggest. The whole question should be thoroughly threshed out.

James Gibbs's Queen Anne Column.

IN "A Book of Architecture" (1728), James Gibbs, in describing plate 21, which is a perspective view of St. Mary-le-Strand, writes: "There was at first no Steeple design'd for that Church, only a Small *Campanile*, or Turret for a Bell, was to have been over the West End of it: But at the distance of 80 feet from the West Front there was a Column, 250 feet high, intended to be erected in Honour of Queen Anne, on the top of which her Statue was to be placed. My design for the Column was approved by the Commissioners and a great quantity of Stone was brought to the place for laying the Foundation of it: but the thoughts of erecting that Monument being laid aside upon the Queen's Death, I was ordered to erect a Steeple instead of the Campanile first proposed"—a change that, whether or not it was characteristic of a hypocritical and time-serving age, has spared us a sort of modified replica of the Monument on Fish Street Hill.

Proposed Memorial to Benjamin Franklin.

BENJAMIN FRANKLIN, printer, man of letters, man of science, philosopher, and diplomat, is to have a memorial in the Lady Chapel of the church of St. Bartholomew-the-Great, West Smithfield, the oldest and most interesting of London's churches, always excepting Westminster Abbey, which, however, is in a different category. Franklin, in the first quarter of the eighteenth century, worked as a journeyman printer at Palmer's, in Bartholomew Close. Palmer, indeed, carried on his business in what had been the Lady Chapel of the Augustinian Monastery of St. Bartholomew and is now the Lady Chapel of the parish church, although it had been used as some sort of a factory down to 1885, when it was re-purchased for the church. It was restored to its present condition in 1897. As it was therefore actually in this chapel that Franklin worked, it is peculiarly fitting that some memorial of him should be placed there. There are, it is stated, five canopied niches in the east wall awaiting "figures of female saints," and it is proposed to fill one or more of these niches in honour of Franklin, with a tablet suitably inscribed. Considering Franklin's character in all its bearings, the "female saints" are not a particularly happy suggestion.

OUR EDITION DE LUXE.

THE annual *Edition de Luxe* of this Journal, which will shortly be ready for publication, contains features of exceptional value and interest. Among these is a complete collection of portraits of the Presidents of the Royal Institute of British Architects, from Earl de Grey, who first held that position, to Mr. Reginald Blomfield, A.R.A., its latest occupant. These photographic reproductions of the original paintings in the possession of the R.I.B.A. imply the additional interest attaching to the work of such eminent artists as Cope, Oules, Alma-Tadema, Sargent, Dicksee and others; and notes of the life and work of each president are appended in each instance. A further important feature consists in a representative collection of plans, sections, and photographic views of cheap houses for artisans, labourers, and small-holders; more than thirty plates showing in the most practical manner possible how the housing problem is being solved. The chief buildings of the year will also be extensively illustrated. Orders for this issue should be given without delay, as it will no doubt soon run out of print.

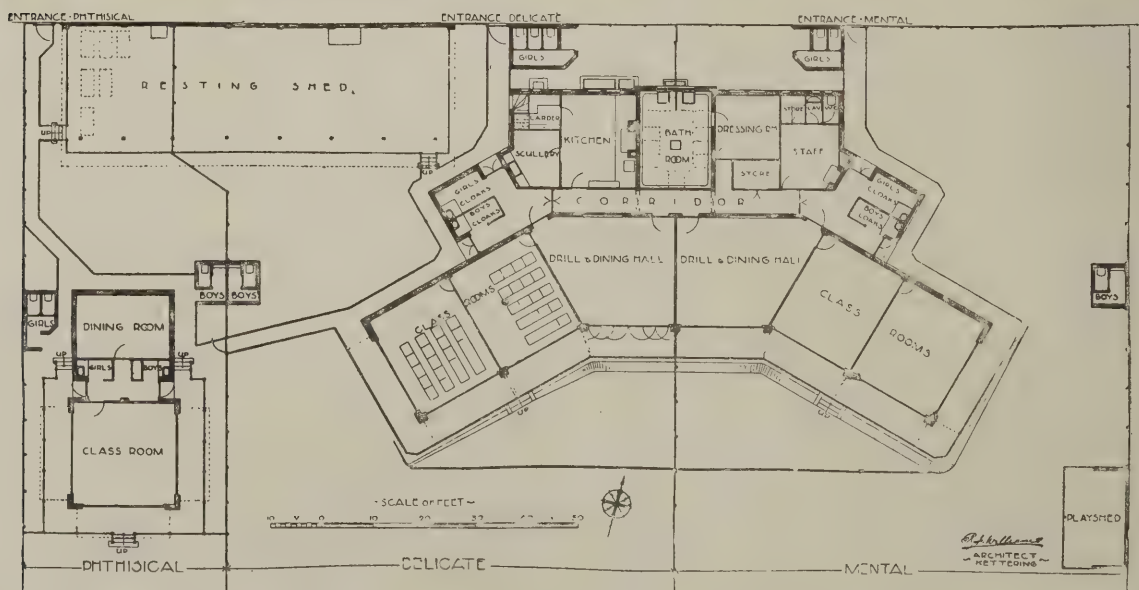
DESIGN AND PLANNING OF OPEN-AIR SCHOOLS.

WITH the development of the open-air school movement a demand has been created for a wholly novel type of building, to which none of the accepted canons of school planning apply. It is now realised that enclosed rooms form a by no means satisfactory environment for growing children, particularly those of a naturally weak constitution; and in over-crowded areas this disadvantage becomes even more apparent. The open-air school movement, which is rapidly growing, has received the support of the Board of Education in the person of Sir George Newman, who in a recent series of lectures advocated the building of schools of this type as the only means "to stem the tide of physical and mental defect in the children of the nation." It may be mentioned that the school at Knowle, Bristol, which we illustrate, has been commended by Sir George as "one of the best for its purpose in the kingdom."

With regard to the Recovery School at Kettering (for permission to illustrate which we are indebted to Mr. John Bond, clerk to the Kettering Education Committee, and to "The School Government Chronicle"), the following particulars may be given: The school,

which has been built on practically the highest ground in the town, provides, in addition to classroom accommodation, dining-rooms, in which meals are served to all scholars. The mentally defective and the delicate are accommodated in the main building, the central portion of which faces almost due south. On either side are wings, each comprising two class-rooms measuring about 21 ft. by 18 ft. These have been cantoned out at the angles, so as to afford as much shelter as possible from the north winds. The rooms are about 11 ft. in height, and have been effectively treated with distemper in two shades of green. Electric light has been installed throughout. A separate phthical block is provided, the flooring being raised 2 ft. 6 in. from the ground. The school, of which Mr. R. J. Williams was the architect, is estimated to have cost £3,000.

In planning the school at Knowle, the aim of the architect, Mr. B. Wakefield, Licentiate R.I.B.A., was to obtain the maximum amount of sunlight and air and yet to screen the classroom and rest shed as far as possible from cold winds. The building is therefore schemed in the form of the letter L, with the dining-



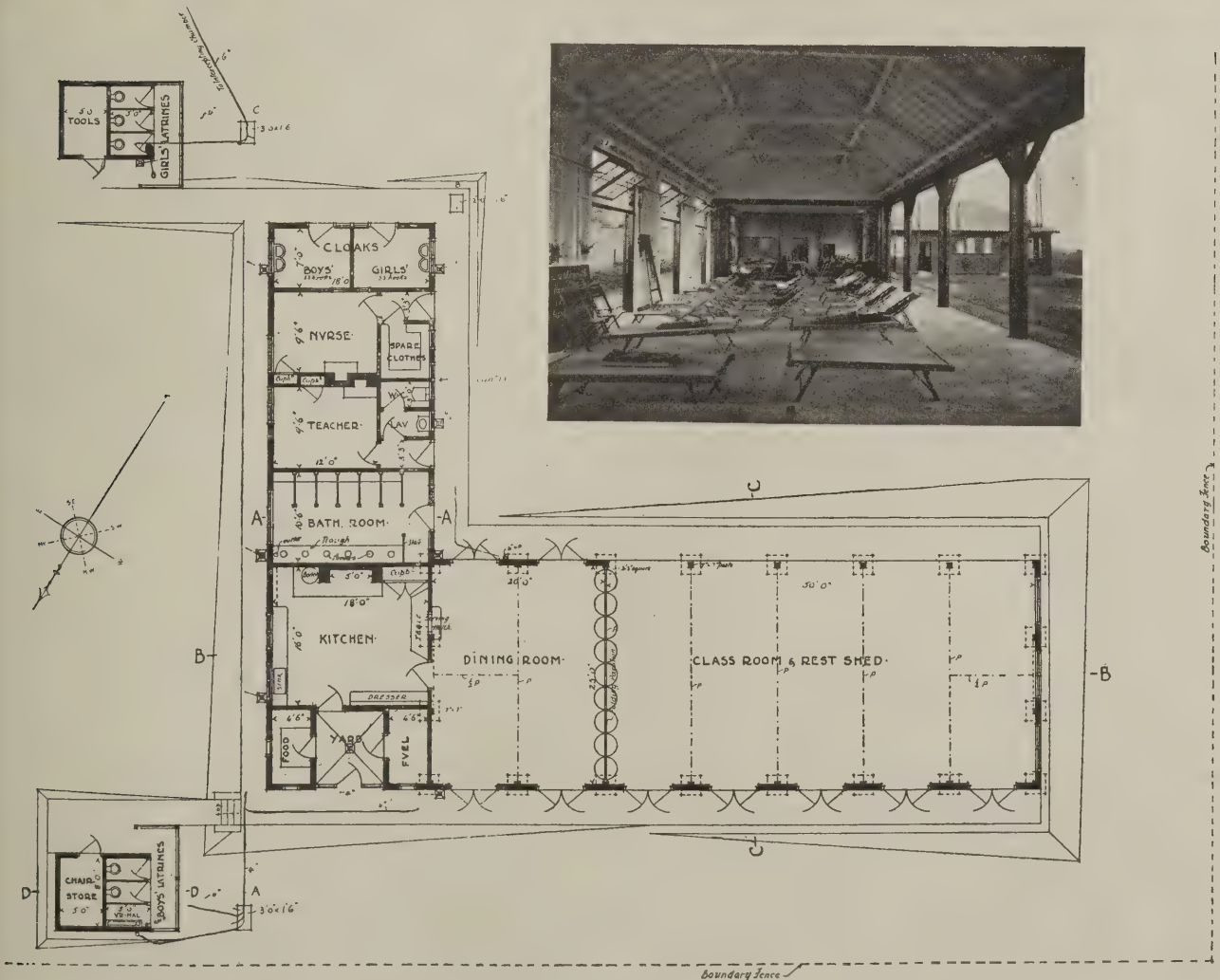
OPEN-AIR RECOVERY SCHOOL, KETTERING. R. J. WILLIAMS, ARCHITECT.

room, classroom, and rest shed facing a little south of south-east and screened by the administrative portion of building, which faces north-east. The school comprises a classroom and rest shed 50 ft. by 25 ft., dining-room 20 ft. by 25 ft., bathroom, nurses', and teachers' rooms, clothes store, boys' and girls' cloak-rooms and offices, kitchen, larder and stores for fuel, rest chairs and tools.

The south-east side of classroom and rest shed is open, the end and north-west side being enclosed and fitted with windows and French casements. Opening fanlights, carried up the full height of room, are fitted over the French casements, so that on all of these being

thrown open the classroom and rest shed become practically an open shed. The dining-room is fitted with similar doors and fanlights, and thorough cross-ventilation is obtained by the use of the latter, the doors being closed during very inclement weather. The dining-room is divided from the classroom and rest shed by a swivel-hung glazed partition, which folds back to each side of room, thus providing an unimpeded floor space of 1,750 square feet.

The walls of the building are constructed of timber framing on a brick foundation, the framing being boarded and felted and sheeted on the outside with weather-boarding; all exposed timber (including



Ground-floor Plan.

OPEN-AIR SCHOOL, KNOWLE, BRISTOL.

B. WAKEFIELD, LICENTIATE R.I.B.A., ARCHITECT.

internal joinery) is treated with Solignum. The roofs are boarded and felted and covered with sand-faced pantiles. All the floors are jointless, and the material is brought four inches up the walls to form a coved skirting, thus facilitating hosing down when necessary. With the exception of classroom and rest shed, all internal walls are plastered and distempered, or finished in enamel. The general contractor was Mr. E. C. Norris, of Bath Bridge.

THE PLATES.

The Rome Scholarship Designs.

ALTHOUGH the announcement of the awards in the competitions for Scholarships at the British School at Rome were published in October, the drawings were not exhibited until the end of the present month. The exhibition, which was held at the Royal Academy, closed yesterday. As already announced, the Rome Scholarship in Architecture was awarded, on the recommendation of the Faculty of Architecture, to Mr. H. Chalton Bradshaw, a student of Liverpool University. The Faculty of Architecture consisted of Mr. Reginald Blomfield (chairman), Professor W. R. Lethaby, Mr. E. L. Lutyens, Sir Robert Lorimer, Mr. Ernest Newton, Professor C. H. Reilly, Mr. J. W. Simpson, Mr. Leonard Stokes, and Sir Aston Webb. The Scholarship, open to British subjects under thirty years of age, is of the value of £200 per annum, and tenable for three years at the British School at Rome. The subject in the final competition was "A Civic Centre or Modern Forum Surrounded by Important Public Buildings."

Apartment House, Place Victor Hugo, Paris.

We illustrate in this issue a further example of the Paris apartment house. It is to be regretted that the presence of a number of large trees prevented the taking of a view of the complete building; but the detail shown conveys a fairly comprehensive idea of its architectural character. The building is more remarkable for its detail than for its general grouping, in which respect there

seems to be a lack of co-ordination. The name of the architect is not known to us.

Pair of Houses, Millington Road, Cambridge.

These houses are built of brick (covered with rough-cast), and roofed with hand-made sand-faced tiles of delightfully varied colour and texture. Similar tiles, made by the builder, were used by him on Emanuel College. The internal joinery is all of American white wood (stained, oiled, and rubbed), except the principal mantelpieces, which are of African walnut. The contractor was Mr. Wm. Saint, of Cambridge.

Shop Fronts in Bond Street.

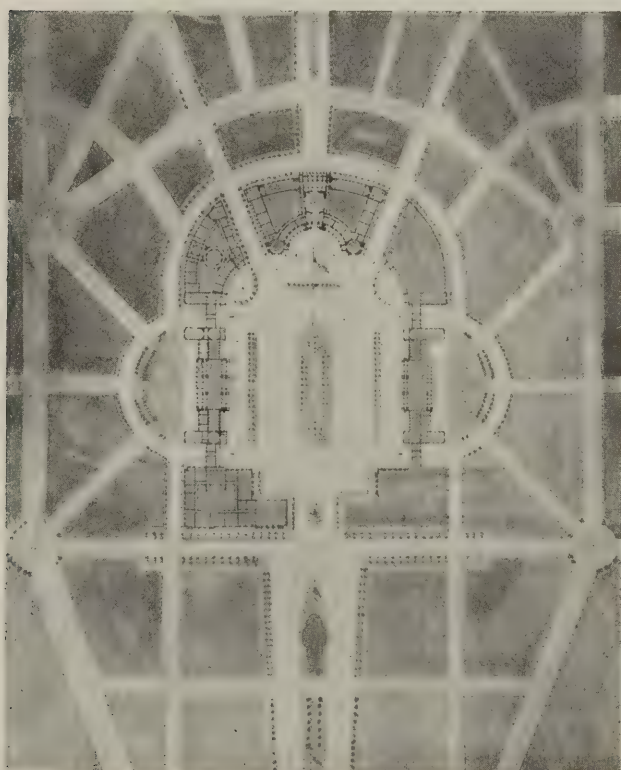
Two successful solutions of the shop-front problem are illustrated in this issue. In one instance the demand was obviously for a large area of window space for the display of a variety of goods; but in the other the owners were content with a comparatively limited amount of glass; and that, even, is divided into three separate compartments; metalwork is extensively employed in the first example; but the second, rather more architectural in character, is mainly executed in wood.

Carved Wood Panel, Palais de Justice, Paris.

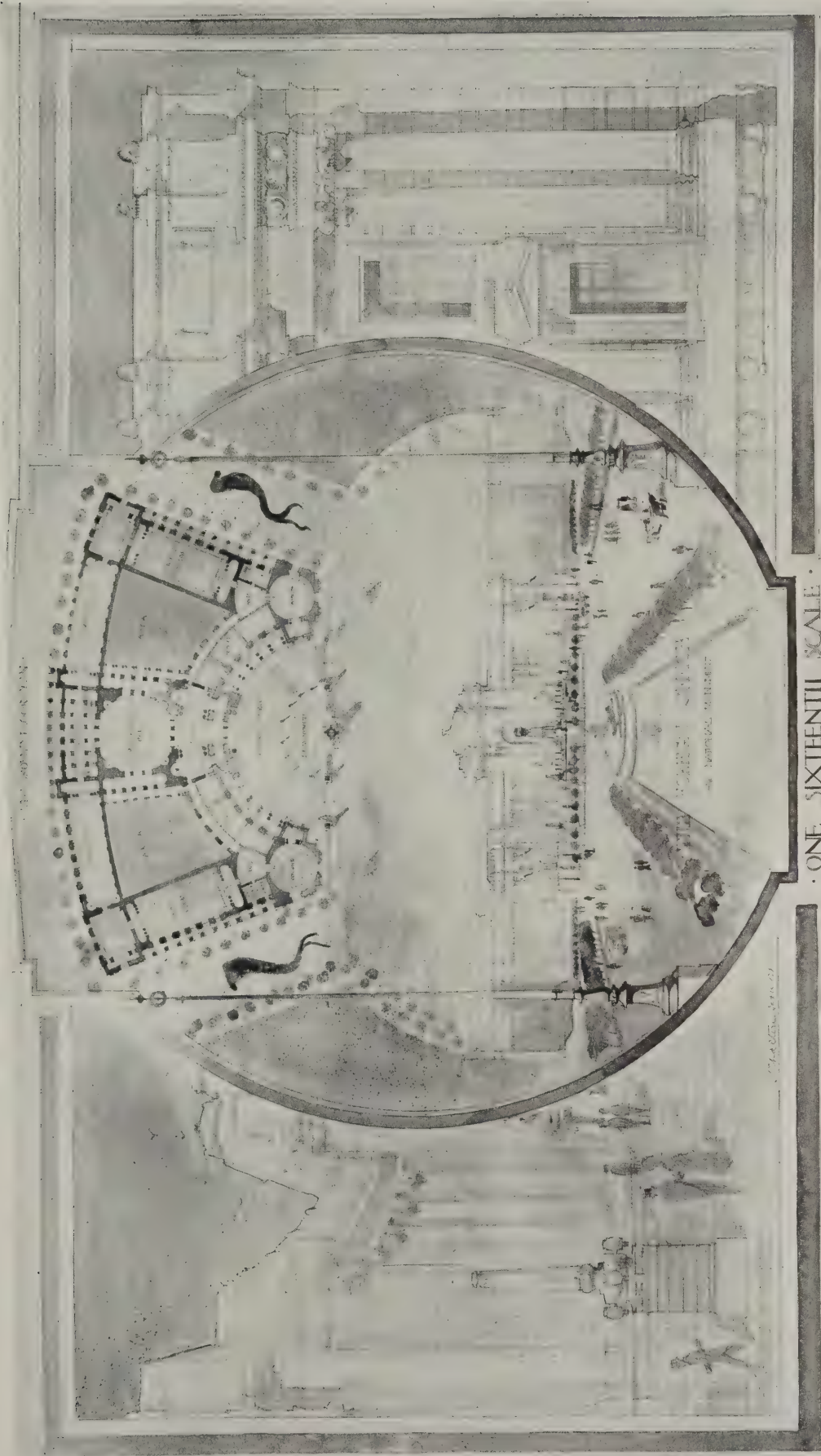
The Palais de Justice abounds in original and finely executed detail, a characteristic example being included in this issue. The panel is largely composed of the symbols of Justice, from which a clean, vigorous, and well-balanced piece of design has been evolved.

Colonnade, Cardiff Technical Institute.

The working drawing reproduced in this issue shows a portion of the colonnade to the new Cardiff Technical Institute, forming the central feature to King Edward VII. Avenue. The stone used is Portland, from the quarries of the late Mr. F. I. Barnes, of Portland. The attic storey, which forms the dominating feature on the front elevation, serves to screen the ridge-and-furrow roof of the art rooms. In consequence of the adoption of a "natural" form of ventilation, fresh-air inlets are brought into greater prominence than would otherwise be the case. The building is now in course of erection, the contract (£43,859) being in the hands of Messrs. E. Turner and Sons, Ltd.



THE ROME SCHOLARSHIP: PLAN AND BIRD'S-EYE VIEW OF SUCCESSFUL DESIGN BY H. CHALTON BRADSHAW.



STUDENTS' DRAWINGS. I.—ROME SCHOLARSHIP IN ARCHITECTURE: DESIGN FOR FOREIGN OFFICE AND NATIONAL MONUMENT.
BY H. CHALTON BRADSHAW.



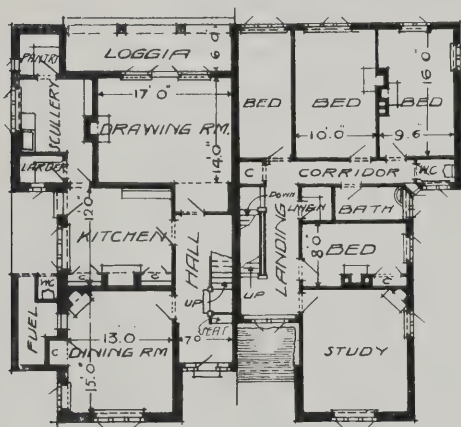
STUDENTS' DRAWINGS. II.—ROME SCHOLARSHIP IN ARCHITECTURE: DETAIL OF DESIGN FOR FOREIGN OFFICE AND NATIONAL MONUMENT. BY H. CHALTON BRADSHAW.



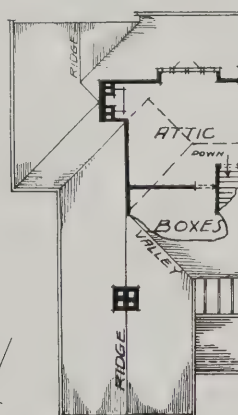
CURRENT ARCHITECTURE. XXXII.—APARTMENT HOUSE, PLACE VICTOR HUGO, PARIS.



Entrance Front.



GROUND AND FIRST FLOOR



ATTIC AND ROOF



Garden Front.

MODERN DOMESTIC ARCHITECTURE. XV.—PAIR OF HOUSES IN MILLINGTON ROAD, CAMBRIDGE.

H. G. IBBERTSON, F.R.I.B.A., ARCHITECT.



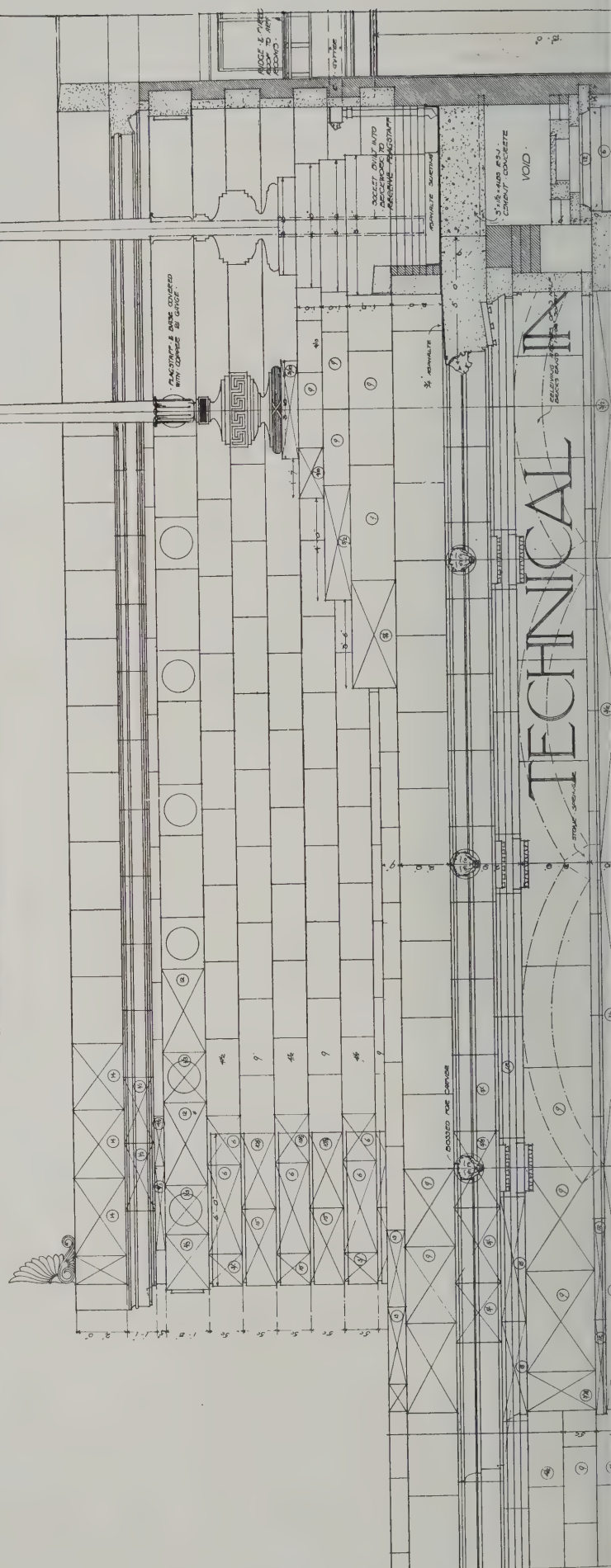
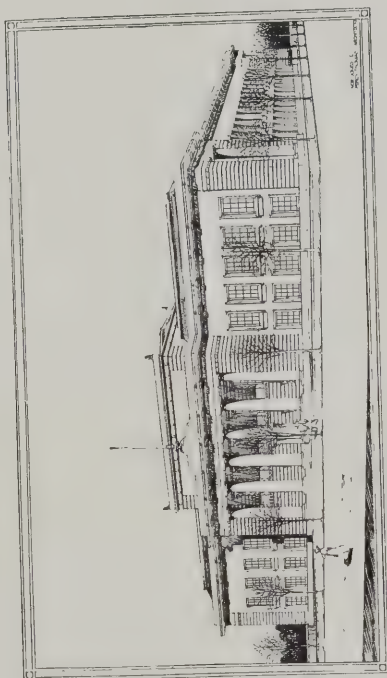
MODERN SHOP FRONTS. XI.—NOS. 14 AND 15, NEW BOND STREET, LONDON, W.

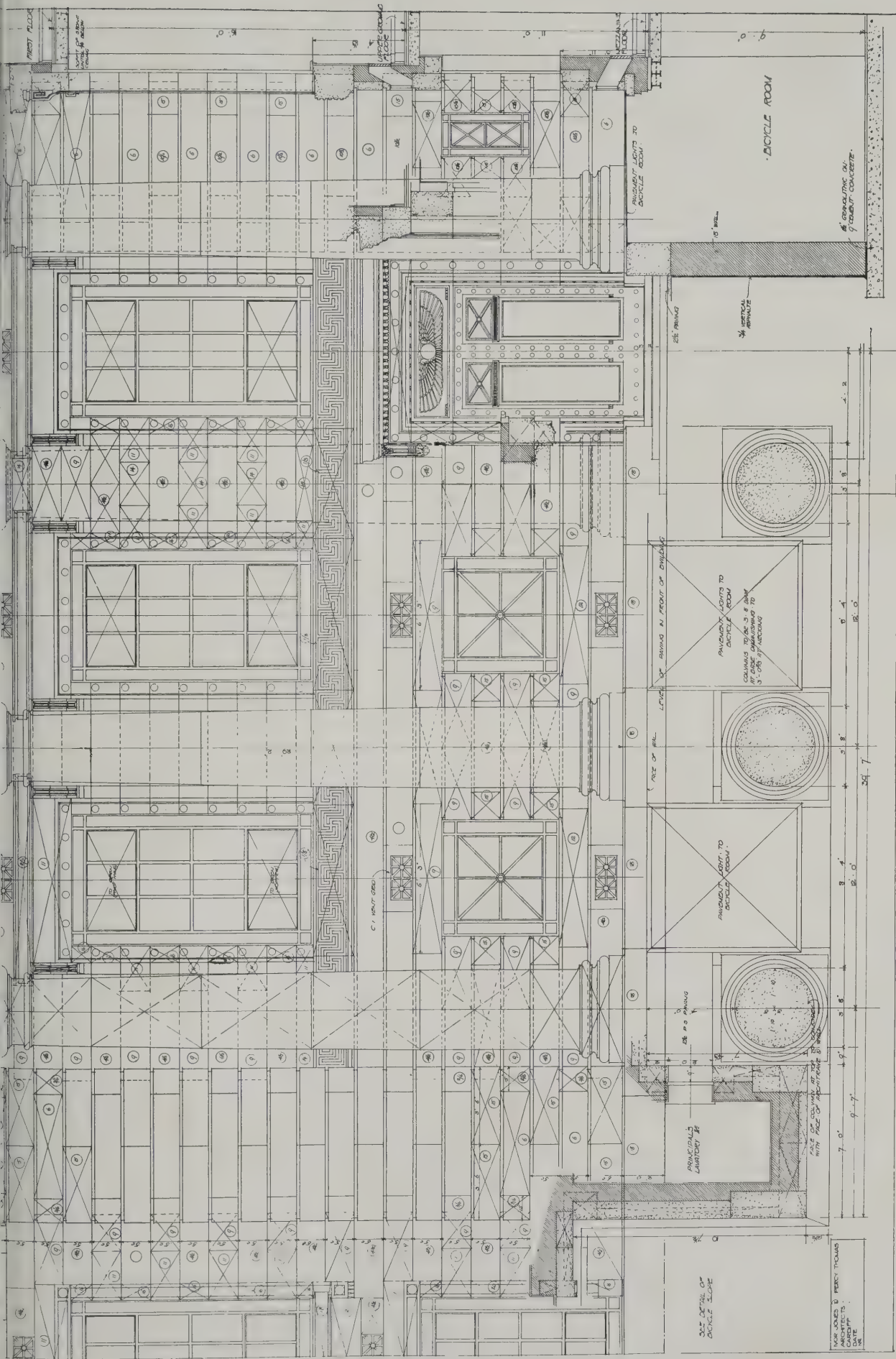
G. B. CARVILL, ARCHITECT (NO. 14), H. PERCY ADAMS AND CHARLES HOLDEN, F. AND A.R.I.B.A., ARCHITECTS (NO. 15).



NEO-GREC DETAIL. X.—CARVED WOOD PANEL IN THE COUR DE CASSATION, PALAIS DE JUSTICE, PARIS.

J. L. DUC, ARCHITECT.





WORKING DRAWINGS BY WELL-KNOWN ARCHITECTS (NEW SERIES). X.—CARDIFF TECHNICAL INSTITUTE: DETAIL OF MAIN FAÇADE.

IVOR JONES AND PERCY THOMAS, ARCHITECTS.

HERE AND THERE.

THE Editors of this Journal, moved by the spirit of Christmas, have made me a little present, which is most acceptable at a time when the pressure of work is greatest. It takes the rather unusual form of an article by a Fellow of the Institute, who gives a breezy account of a young architect setting out to spend a day on his first country job. With this explanation, we will follow the architect in his day's excursion, and, in order to render the account free from ambiguity, we will adopt the personal pronoun, which, of course, will be the F.R.I.B.A.'s, not my own.

First for the train to Foreston. The builder had offered to drive me from the station, but I was not going to accept that, partly because it would look as though I were the builder's guest. On the other hand, private motors are expensive, and of taxis there were none, so I preferred the best reason of all—that I might have three miles' walk on a lovely morning. On the way down I had fortified myself "cap-à-pie" by noting all the points on the plans and specification which would demand my special attention on the spot. The journey done, I bounded from my padded cell and started for the job. Recollections of various bits of wise counsel in "Hints to Young Architects," "How to Build a House," and "How *Not* to Build a House," and such like, occupied my mind, and I ruminated upon their application to my own precious case. Also, whether or not the general foreman was general enough, and sufficiently qualified for his position. I had doubts, too, as to whether those joists upon which I had passed a sentence of deportation at my previous visit had been removed, or whether I should have to insist on their being opened up, if covered in. I had no misgivings that my builder intended any deliberate dishonesty, but I was not so sure about his foreman. One thing, however, I was determined upon—I was not going to be conducted about the works, and side-tracked.

On arrival at the job, and after observing that I had managed to catch an earlier train than I had expected—a piece of information which did not appear to be received with unqualified delight—I looked round and made a mental note of the resourcefulness of some of the workmen, whose good conscience was the foreman. I then passed from the general to the particular. I ascended to the roof, where the tiler was bedding some ridging. "What nails are these?" "Clout nails, sir, tiling nails," replied the foreman. "Showing signs of rust. Composition nails are required by the specification. The tiling must be stripped off." At this announcement the builder's face became a moving picture, and the foreman's lengthened by a full diameter. The following conversation then took place: "While I am up here my pocket-knife shows this lead flashing to be turned only a quarter-of-an-inch into the groove." "I'll stop it in for you, Mister; I don't like to see open joints myself." "The detail drawing is clear enough. The flashing must come out, and a wider one must be substituted, and turned into the joint properly."

"Jim, the architect says, 'Why have you left these joists next the wall?'" "Well, I thought as 'e would not like 'em across the middle of the room." However, I would not have them anywhere, and ordered them off the job. The foreman's little ways were beginning to reveal themselves.

"Nice stoves, now they've set, Mister: very pretty stoves I call 'em." By way of making further acquaintance with them I found that my arm disappeared down to the shoulder in the pockets on either side of the stove! "Jim, you told me these stoves were set," said the foreman. "Well," I observed with inflexible decision, "all the mantels will have to come down, and the stoves will have to be set properly." By this time the foreman was beginning to feel that he was doing a poor piece of business. "I have felt through this

hole with a lath," I continued, "but can't feel any wall-ties." "Tom," said the foreman, "why didn't you put more wall-ties?" "They only sent two thousand to your order, and three thousand are wanted," says Tom, "and I am trying to make they go round as much as they will." This led to a disquieting *tête-à-tête* with the builder, and things looked as if the work would have to be pulled down till the proper spacing of ties was reached! At the end of a frank statement on my part, delivered, of course, *in camera*, the builder looked very much as though he had been through purgatory.

Proceeding on the round, in company with me, the builder learned that a stopped lining could not pass as a rebated one, nor could certain other improved renderings of the text of the specification be countenanced. The next thing which came under observation was a demonstration in brickwork by a young fellow who, having evidently "learned" his trade, was reverently laying to rest odds and ends of bricks to satisfy the exactions of the backing of an eighteen-inch wall. "Very neat on the outside," I remarked, "but I would rather that young fellow were spreading hard rubbish, and his place filled by a real bricklayer who keeps to his quarter-bond."

And these delinquencies were not all that called for notice. Eaves guttering was being fixed with inside sockets, and with wood-stopped ends. Rafters were not cut true to hip and ridge, possibly to allow for ventilation. The screeding bed for the oak wood-block floors did not show true and level. Solid back linings had not been put to the sash frames. White deal skirtings were fixed in the kitchen in lieu of yellow, and cast butts were put to the doors; nor were the plates of the sash pulleys in solid brass. But the list were weariness to continue it.

The moral is obvious. The client would not afford a clerk of works, and it was not in my power to require one. One thing, however, was within my prerogative, and the foreman left the job that day, never to return.

* * * *

I take it to be the fact that people appear in a strange light for the first week of every New Year, as the result of things they have resolved upon. It is during this brief period that the diarists fret over the meagreness of the pages that will not hold half what they wish to set down. Yet, if we will but exercise a little patience, everything will be set right again very soon. The daily record will become beautifully less as the first weeks of January run their course, leaving acres of empty sheets to wait, untouched, for the following months. But to upset this old notion of new resolves on the threshold of another year would be to effect a revolution that humanity could never tolerate. So let the past be the present, and let us continue to resolve. If we be architects, then, despite high precedent, we are never to trespass on our Fellow's client; we are never to lay on our boards, with intent to copy, plans of municipal and other buildings that have appeared in the building journals; henceforth we shall purloin wholesale the details of sculpture and ornament that look so entrancing in the big French monographs, and not attempt to disguise our theft by adding a little bit here and making an alteration there, thus producing something which is just good enough to be very bad; we shall not adopt a very superior air when we interview the traveller, by appointment, because he probably is a much better traveller than we are an architect; and we shall resolve to pay tribute to the talents of great men, and not speak in the most off-hand fashion of Norman Shaw while we do our own little tin-pot Carnegie libraries and additions to drapers' premises. Finally, if we be architects' assistants, then let us resolve to dose ourselves regularly with ammoniated humility and so guard against our greatest danger—the swollen head.

UBIQUE.

THE CONDITIONS OF BUILDING AND ENGINEERING CONTRACTS.—XIII.

Being an Explanation of the Clauses of the General Conditions of Specifications and the Legal Decisions affecting them.

SPECIALLY CONTRIBUTED BY E. J. RIMMER, M.Eng., B.Sc., A.M.Inst.C.E., of Lincoln's Inn and the Northern Circuit, Barrister-at-Law, and KENNETH G. THOMAS, B.A., LL.B. (Cantab.).

(Concluded from page 555, No. 989.)

Parentetical numbers in the text refer to cases noted at the end of each section.

CHAPTER X.

ASSIGNMENT AND SURETIES.

I. Assignment.

This clause usually provides that the contractor shall not without the consent in writing of the engineer or building owner re-let, sub-let or assign the contract or any portion thereof or the benefit thereof or any sub-contract for the execution of the whole or any portion of the works.

II. Sureties.

The clause in a contract dealing with sureties usually provides that the contractor shall, if required, find one or two substantial sureties for the due performance of the contract and that he shall be bound with them in a specified sum for the due fulfilment thereof. It further provides, generally, that the liability of the sureties shall not be impaired by the exercise by the building owner of any of his rights under the contract.

In nearly all building and engineering contracts a clause of this nature is properly inserted for the protection of the building owner, and in such case care should be taken that in the "interpretation of terms" clause the definition of "contractor" does not include the word "assigns" unless qualified by the adjective "licensed."

The clause may most conveniently be considered under the following three heads:—

1. Assignment of performance of the contract.
2. Sub-letting.
3. Assignment of the benefit of the contract.

1. Assignment of Performance of the Contract.—It is a rule of law that the performance of a personal contract, that is, a contract in which one party reposes special confidence in some personal quality—e.g. skill, honesty, credit—of the other, cannot be assigned. As Lord Denman said in one case (97), "You have a right to the benefit you contemplate from the character, credit, and substance of the persons with whom you contract. Whether a contract is personal or not depends on the particular circumstances of each case; but the insertion of a clause against an assignment renders it so in any event, and that is the safe course to adopt, although contracts for large works of a special nature might be held to be personal contracts without the inclusion of such a clause. But it is to be noted that if, even when the contract contains a clause against assignment, the building owner acquiesces in the performance of the contract by a third party, he will be held bound by such acquiescence and will be estopped from claiming that the contract was a personal one.

2. Sub-letting.—The right of a contractor to sub-let, in the absence of special provision against sub-letting, is wider than his right of assignment, for it appears that unless it is intended that the contractor shall perform the contract in person, he may sub-let the work under his superintendence. No liability towards the sub-

contractor is thereby imposed upon the building owner, but the latter may be prejudiced by the contractor's choice of a sub-contractor and by the fact that such sub-contractor is not bound by the conditions of the original contract even if he has notice of them. Hence it is usual to insert in the contract a clause prohibiting sub-letting unless the consent of the building owner or his engineer is given thereto.

3. Assignment of the Benefit of the Contract.—That part of the clause which provides that the contractor shall not assign the benefit of the contract is exceedingly important, because it is the safeguard of the building owner against being brought into a compulsory relationship with some third person with whom he does not wish to deal and who has certain rights against him of a character which must be irksome to the building owner, and which are out of his control; for, unless there is a clause to the contrary, the Courts will give effect to an assignment of this kind if the following conditions have been complied with:—

The assignment is (1) in writing; and (2) for value; and (3) notice thereof has been given to the building owner.

The decisions show that a building owner may be seriously prejudiced by the absence from his contract of such a clause. For example, in one case (98) where there had been an assignment of the moneys due under the contract the building owner advanced money to the contractor who was in difficulties to enable him to complete the contract, he was obliged to pay again to the assignee. Nor is the building owner permitted to affect in any way the position of the assignee by any alteration in the contract unless the contract itself authorises such alteration, even if it would be for the benefit of the contractor. In the case referred to (99), Bramwell (L.J.) said: "It does seem to me a strange thing and hard on a man that he should enter into a contract with another and then find that because that other has entered into some contract with a third, he, the first man, is unable to do that which it is reasonable and just he should do for his own good. But the law seems to be so."

It is true that the assignee takes subject to all equities, and equities (i.e. defences and set-offs) which would have been good against the contractor will be good against his assignee; but it is nevertheless clear that the building owner will be greatly prejudiced unless it is provided that the contractor shall not assign the benefit of the contract or of any portion of that benefits, as, for example, the assignment of retention money.

II. Sureties.

It is clearly advisable for the building owner to require the finding of sureties by the contractor in any case where the contract is for a considerable amount or where the financial stability of the contractor is at all doubtful; and for the protection of ratepayers Section 174 (4) of the Public Health Act, 1875, provides that urban authorities shall take surety for the due performance of any contract of the value or amount of £100 or upwards.

This sub-section is, however, directory only (100, 101).

The contract of suretyship is one which comes within Section 4 of the Statute of Frauds, and must be in writing. There must be consideration for it unless it is under seal (though such consideration need not be expressed in the contract), but the contract of the building owner to pay the price named in the contract is a sufficient consideration.

A person proposing to become a surety must be put in a position to realise exactly what his liability will be, and unless all the circumstances and nature of the undertaking are disclosed to him by the building owner he may be discharged from liability (102).

The surety may further be discharged in the following ways:—

1. By completion of the works, or, if so expressed in the contract of suretyship, by completion thereof to the engineer's satisfaction. Where, however, the contractor by his fraud obtains a final certificate the surety or sureties continue liable (103).

2. By an act of the building owner prejudicial to the right of the surety under the contract of suretyship to contribution or indemnity.

3. By an act or omission on the part of the building owner affecting the surety done or omitted without the surety's consent, unless such act is done or omitted in accordance with the terms of the original contract. Examples of such acts or omissions are: Alteration of the terms of the original contract, release of co-sureties or principal, over-payment to the contractor on advances, omission to insure against fire when the building owner has covenanted so to do.

4. By such a change in the law as renders the work to be done illegal.

The death of either the contractor or the surety does not discharge the latter's liability (104).

The surety may be sued alone on default of the contractor, or both may be sued together, and it is desirable to join the surety in an action against the contractor, because a judgment against the contractor is not binding on the surety unless expressed so to be.

Sureties are entitled to contribution *inter se*, and a surety can prove in the bankruptcy of the principal debtor for indemnity or of a co-surety for contribution; but generally the surety cannot receive a dividend from the principal debtor until the principal creditor has received 20s. in the £ (105).

Cases referred to in the Text:

- (97.) *Humble v. Hunter* (1848) 17 L.T., Q.B. 350.
 (98.) *Brice v. Rannister* (1878) 3 Q.B.D. 569.
 (99.) At p. 580.
 (100.) *Young and Co. v. Mayor, etc., of Royal Leamington Spa* (1883) 8 App. Cas. 517.
 Per Lord Bramwell at p. 528.
 (101.) *Soothill Urban District Council v. Wakefield Rural District Council* (1905) 2 Ch. D. 516.
 At p. 535.
 (102.) *Stiff v. Ensbourne Local Board* (1868, 1869) 10 L.T. (N.S.) 408; 20 L.T. (N.S.) 339. The defendants informed S., a surety, that the works under the contract would be performed under the supervision of their surveyor. They engaged another surveyor to give joint supervision. Held: That S. was discharged from his liability.

(103.) *Kingston-on-Hull Corporation v. Harding* (1892) 2 Q.B. 494.
 (104.) *Lloyd's v. Harper* (1880) 16 Ch. D. 290.
 (105.) *Ex parte Turquand: In re Fothergill* (1876) E. Ch. D. 445.

Preceding articles in this series, of which the present one is the last, were published in the following issues: October 1st, 8th, 15th, 22nd, November 5th, 12th, 19th, 26th, December 3rd, 10th, 17th, 24th. Copies of these issues can be obtained from the publishers.

MR. MARCH PHILLIPPS AND MR. BLOMFIELD "THE CLASSIC INSPIRATION."

Mr. L. March Phillipps, since the delivery of Mr. Blomfield's destructive R.I.B.A. presidential address, has remained, like Achilles, sulking in his tent. A few days ago he emerged in the columns of the "Morning Post," with a long letter to the editor under the above heading, in which he returned to the attack. Unlike the hero of Troy, however, he has not achieved victory on his renewal of the combat. So far, the honours are decidedly with Hector, in the person of Mr. Blomfield. In the course of his communication Mr. March Phillipps wrote:—

"There is a sentence in Mr. Blomfield's presidential address which indicates very well the difference in ideas among people interested in architecture at the present time. 'A generation has grown up,' he says, 'anxious to get to the heart of things, and to grasp the informing spirit of Neo-Classic architecture.' It seems to me that expresses with perfect aptness the point of view of the criticisms which some of us are advancing."

The Perfection of Doric.

"I suppose that everyone who has come to the thinking age must love Classic art, that is to say, must love Greek art, for Greek art, and Greek art alone, embodies the intellectual lucidity which was the treasure of Classic thought. Therefore everyone who has learnt in the least degree the significance of Greek thought and philosophy, who knows what the Greek civilisation was based on, or can appreciate the Greek conception of the ideal character as one formed on a perfect intellectual plan, with life, conduct, and ideas harmoniously developed, never can fail to be drawn and possessed by the influence of Doric architecture. For it really is not too much to say that the Doric temple is a visible incarnation of the spirit of intellectual lucidity which was the inspiration of Greek life. Here, in these structural forms, each existing for the sake of the others, and gaining its individual consequence and beauty from its relation to the whole, here are visibly expressed in the language of art, and with a subtlety of articulation which months of analysis will not exhaust, the hatred of eccentricity and excess, the love of perfect symmetry and sweet reasonableness which were the governing principles of Greek philosophy."

To Copy or to Adapt?

"It is a thing to be glad that Mr. Blomfield, with his influence and opportunities for directing others, should, as he tells us, be bent upon perpetuating the 'informing spirit' of such an art as this. The only question that arises is, How is this to be done? Is it to be done by copying or adapting the outward forms of the art, or, as the word spirit seems to imply, by assimilating certain inward principles which, while they animated those forms, might also as readily animate others?"

As to the first suggestion, it will occur to everyone, to begin with, that the Classic forms at present proposed for our imitation are very little like the pure original incarnations of Greek thought. Having been vulgarised out of all recognition by Rome they were handed on to be experimented upon by all the European nations in turn, and, in the battered condition in which they finally reach us, may be said to preserve scarcely a trace of their original inspiration. It is true that the Greek forms survive and may be reverted to, but one sees no sign of this being done, whether because the copiers of forms cannot distinguish bad forms from good or for some other reason is doubtful. The fact remains that the structural forms at present in use in the official circles of architecture are such as would have seemed to any Greek, to any representative, that is, of the Classic ideal, the last word in intellectual as well as artistic degradation.

Renaissance Steeples "Absurdities."

"Having seen all that our architects can do in the way of Classic churches, and having experimented largely in Classic steeples (expressions of the vertical in terms of the horizontal which take first place among the absurdities of architecture), we have apparently come by general consent to the conclusion that, when it is a question of embodying spiritual instincts and perceptions, the Classic style is helpless."

"Taking the Renaissance right through, its most remarkable, most salient trait has been its pursuit of the form instead of the spirit of Classic art. It was said of one who had caught the very inspiration of Classic verse, that he 'wore the garb but not the clothes of the ancients.' With our architects it is the other way about; it is on the old clothes of the ancients they concentrate their affections. We shall never imbibe the real Greek influence under those conditions. Morning will begin with us when we call a building Classic not because it affects a certain kind of capital, or pilaster, or entablature, but because it exhibits from first to last a perfect knowledge of the effect it is aiming at and of the best means for securing it. For three centuries, with rather disappointing results, we have sacrificed the spirit to the form of Classic art; if we are to get out of our troubles we must make up our mind to sacrifice the form to the spirit."

Mr. Blomfield's Reply.

In reply to the foregoing letter Mr. Blomfield wrote: "Mr. March Phillipps will not, I hope, think me discourteous if I compare his treatment of modern architecture to a cocoanut shy at a fair. In that time-honoured game a grotesque effigy is put on a post and belted with balls at so much a shy. So Mr. March Phillipps, having put up quite imaginary versions of modern architecture, proceeds to demolish them with conious and untiring eloquence. He now appears to be robbing us of our one ewe lamb, for he has annexed, as his own, views on the meaning of architecture which architects were the first to formulate, views to which they attach an importance far greater than any they would attach to merely abstract theory. Under these circumstances it is a little unkind to belabour architects for not possessing views which, in point of fact, are to some of them a ruling principle of life."

Intellectualism and the Workman.

"In his latest letter Mr. Phillipps appears to have shifted his ground. Unless

he has been entirely misunderstood, he advocated the suppression of the architect and his cold intellectualism, and a return to what Mr. Phillipps (but nobody else) believes to have been the mediæval practice of leaving everything to the workman. In his last letter Mr. Phillipps adopts my phrase as to the need to 'grasp the informing spirit of Neo-Classic architecture.' This, as I pointed out in the address to which Mr. Phillipps refers, is what architects have been sedulously endeavouring to do since the end of the nineteenth century. Some sort of intellectualism is surely necessary for this, and, if so, how does Mr. Phillipps reconcile his hatred of the intellectualism of the architect with this indispensable purpose, and also with his latest and very eloquent admiration for the 'disinterested intellectualism' of Doric architecture? Mr. Phillipps will hardly maintain that the Doric of the Parthenon, of Pæstum, or Segesta, was attained by the efforts of the unassisted workman (probably a slave). He knows quite well that it was not; and that being so, it appears that, after all, architects are a necessity, intellectualism and all."

Rome's Debt to Greece.

"Mr. Phillipps agrees with me when he says that the true spirit of Classic art does not reside in its details, but he appears to draw from this the fantastic conclusion that we are therefore to dispense with details once used by other men, an argument that driven home means that every architect has got to invent a new set of details. Yet, on the other hand, Mr. March Phillipps is himself a good deal exercised about details, for he repeats the familiar attack on the Romans for having 'vulgarised (Greek detail) out of recognition'; and permits himself to make the somewhat violent assertion that 'the standard forms at present in use in the official circles of architecture are such as would have seemed to any Greek, to any representative, that is, of the Classic ideal, the last word in intellectual as well as artistic degradation.' I do not know to what Mr. Phillipps refers when he sneaks of 'official circles of architecture,' but if there is any truth in his statement, the Greek must have been a person of less commonsense than he is generally supposed to have been, for the assertion seems to suggest that it was incumbent on the Romans and their successors to reproduce the exact details of Greek architecture, regardless of differences of purpose, of tradition, of material, of climate, and of light. Surely Mr. Phillipps is himself immersed in that quagmire of detail in which he says we architects are lost."

The Practical Work of Architecture.

"When Mr. March Phillipps dwells on the splendid reasonableness of true Classic architecture we are with him entirely; but architects must protest against assertions that violate history and ignore the practical work in the world which architecture has, and has always had, to do. The reason why it is still the most vital of the arts is that it is based upon facts, and is not to be bound down to any Procrustean bed of abstract speculation. I believe Mr. March Phillipps is with us in the main, but if he will ponder these facts he will realise that no simple formula will cover the whole ground of architecture."

Many other eminent people, including Mr. Halsey Ricardo, Professor Beresford Pite, Mr. John W. Simpson, Mr. Paul Waterhouse, Mr. D. S. MacColl, Mr. W. G. Newton, and Mr. E. B. Havell have taken part in the discussion.

THE GRÆCO-ROMAN PHASE.*

BY A. E. RICHARDSON.

WE must retrace our steps a few years in order to comprehend the change in architectural taste which became conspicuous in England during the second half of the eighteenth century.

Ascendancy of Greek Art.

It is next to impossible to give an accurate date when the direct manifestation of Greek art assumed the ascendancy, but the fourth year of George III.'s reign may be taken as a convenient starting point. During the early stages of Neo-Classic development, the tendency had been to approach closely to the excellence of the antique without actually reproducing prototypes. The Italian interpretation of pure Classic forms provided the framework for the English architects to build upon. The widening desire for a more thorough understanding of Roman grandeur led to the skilful adaptation of Classic detail; it also encouraged the spirit of research to such an extent that the veil was lifted from the mysterious Grecian Isles, and marvels of art, buried for centuries, were eventually revealed. Except to a few cultured travellers, Greece in the seventeenth century remained unexplored; the writers on architectural matters at that period hinted vaguely of the three Grecian orders, but beyond hearsay evidence the actual form of those elements remained in obscurity. The increasing importation of Greek sculpture and other objects of art gradually awakened a widespread interest in Greek architecture, and at the middle of the eighteenth century the majority of Englishmen then resident in Italy began to cast longing eyes towards the neighbouring archipelago.

The Society of Dilettanti, among whom the names of Sir James Gray, the Earl of Malton, and Robert Dawkins stand conspicuous, directed operations both from the standpoint of organisation and financial aid, although the proposal for publishing accurate description of the Athenian antiquities emanated from James Stuart, a young Scotsman who had made his way to Rome mainly on foot.

Stuart and Revett.

In 1757 Stuart and Revett were elected architect members of the Society of Dilettanti, a departure from the usual procedure, and in the same year embarked from Venice for Athens. Numerous adventures awaited these enterprising men in Greece. Trouble with the Turkish Government and robbers put a stop to their operations, and in 1755 they returned to England. In the meantime the Frenchman Le Roy planned a rival expedition in the interests of France. He published an illustrated account of his researches, an English translation of which was brought out by Robert Sayer in 1759, but it proved of little value. After many delays the first volume of "The Antiquities of Athens, Measured and Delineated" by James Stuart, F.R.S., F.S.A., and Nicholas Revett, Painters and Architects, was published in 1762. This book proved itself to be the first of a series recording brilliant archaeological research undertaken by Englishmen in Greece and Asia Minor, and to the names of the pioneers, Stuart and Revett, must be added the names of Reveley, Kinnaid, Railton, Donaldson, Cockerell, and

Penrose. The great French architect Hittorff published a translation of the "Antiquities" in 1825. James Stuart, after the result of his researches were made public property, became the centre of a fashionable circle intent on "Grecian gusto," and received the appellation Athenian Stuart. But an inspection of his architectural designs merely shows the studied application of an ornamental Greek veneer to compositions of vernacular type. Lord Anson was the chief patron of Stuart. For this nobleman he designed Lichfield House and No. 30, St. James's Square, and through the same influence obtained the appointment of surveyor to Greenwich Hospital, designing the infirmary in 1763 and the magnificent interior of the chapel in 1779, at a cost of £80,000, followed by the school and dormitory. For Thomas Anson, brother of the famous admiral, he carried out various works at Shugborough, Staffs, the ancestral seat. Then followed Belvedere in Kent, and the house at the corner of Portman Square for Mrs. Montague, alterations to Spencer House and Attingham Hall, Shropshire, as well as No. 45, Harley Street, Stuart's own residence. A valuable collection of Stuart's drawings is held by the Royal Institute of British Architects.

Nicholas Revett, Stuart's quondam partner for research, did not attain to any great prominence as an architect, his work as regards quality developing on parallel lines to Stuart's. At Standlinch, in Wiltshire, he attached a portico to the house built by John Wood for James Dawkins, and in 1778 the Church of Ayot St. Lawrence in Hertfordshire, a beautiful Palladian grouping with a central portico reminiscent of the Dorian temple of Scilly; this composition is placed in a particularly appropriate natural setting.

The "Greek Manner."

Although the "Antiquities" were received with acclamation by people of taste and culture, the majority of the architects then practising were unable fully to appreciate the possibilities which would accrue to native art from the right adaptation of the detail set forth. The actual composition of the Greek prototype offered but little encouragement to English eyes, accustomed to the variations of Palladian composition. By some exponents the detail was assimilated almost subconsciously, and its finesse and ethereal beauty acted as a magic charm. To the local Classic tradition was added a further distinction by the application of Hellenic ornamentation. It should be remarked that the pioneers of the Greek manner were so guided by the prevailing taste that the very conditions of the time shaped their style for them, and prevented the pedantry which prevailed at a later date. The sheer weight of public opinion and sentiment educated on such strictly Palladian theories could tolerate nothing more than the grafting of a Greek skin on to the virile Roman Palladian body. Robert Adam was the first to see the possibilities of Greek ornament and its application. His fertile mind and facile pencil enabled him freely to juggle the sedate formality of honeysuckle and scroll into the panelled surfaces of his own creation. The result was that the leaders of fashion were unable to distinguish between the merits of Stuart's and Adam's work, and became dazzled by the luxuriant adaptations of the

latter. And the artist who was really the greater architect was overshadowed by the man who captured the popular fancy. It is rather a pity that the partnership between Stuart and Revett, entered into for purposes of research, was not extended into the arena of architectural design, for they were the rightful authors of the Græco-Roman issue.

From the platform of to-day we are accustomed to consider Stuart as the man who transplanted Greek temple frontons from the isles of Greece to English soil, but this has been accepted by erroneous reference to the "Antiquities" and not to the work of the architect. Analysis of the architecture proves that nearly sixty years divide the period of his early influence from the period when the purely Greek phase gained the ascendancy.

Architects of the Late Eighteenth Century.

The principal architects of the latter years of the eighteenth century, next to Sir William Chambers, Gandon, and the younger Dance, were Henry Holland, Thomas Hardwick, Samuel Cockerell, Thomas Harrison, James and Jeffrey Wyatt, and Sir John Soane. The latter coterie were all exponents of the Græco-Roman style. John Nash, George Repton, John Linnel Bond, and others of minor renown, followed the development for a quarter of a century, until their work became merged in the Greek phase and took on a different character. Even those architect-engineers, the Rennies, and William Tierney Clark, held firm allegiance to the Græco-Roman school.

Henry Holland, the first to be considered, claimed to have originated the "Anglo-Græco Roman Style," but that distinction indubitably belongs to James Stuart. Holland was in practice as early as 1769, with Claremont House, Esher, and alterations at Trentham; in 1768 he designed Brooks's Club, and, following the lead of the brothers Adam, entered the field of building speculation in the district of Sloane Street. In 1786 he erected the beautiful portico and rotunda for Dover House, Whitehall, and between the years 1788-90 altered and enlarged Carlton House for the Prince of Wales, thereby improving Flitcroft's design. At Carlton House Holland introduced the porte cochère and the screen of columns facing Pall Mall, which inspired Bonomi to the following doggerel verse:

"Dear little columns all in a row,
What they are doing I really don't know."

In 1791 Holland entered the lists of theatre architects, and for Sheridan built the third Drury Lane Theatre at a cost of £200,000 (it was destroyed by fire in 1809), and in 1794 he altered Covent Garden Theatre. This work was followed by the design of the façade to the East India Office, often erroneously attributed to Jupp. His last work was the colonnaded screen to the Assembly Rooms at Glasgow. Sir John Soane was his pupil for about a year.

Before further dealing with the full development, mention must be made of Joseph Bonomi the Italian, who assisted Leverton and the brothers Adam, and acted as joint architect with the younger Vardy for Uxbridge House in Burlington Gardens, and the Italians, Borra and Valdrè, who worked for Nugent Temple at Stowe. Bonomi was an artist in great

* The seventh of a series of Lectures on "The Work of the English Architects of the Eighteenth Century and the Neo-Classic School of the Nineteenth Century," given at University College, Gower Street.

demand, as reference to Jane Austen's novel shows; Borra designed the stately elliptical marble saloon at Stowe, about the time Robert Adam gave the scheme for the garden elevation; while Valdré appears as a painter. Samuel Cockerell, the father of the professor, in his works approached the manner of Holland, although the tower of St. Anne's, Soho, shows the architect to have possessed the faculty of inventive genius.

Thomas Harrison, of Chester, who practised chiefly in Cheshire, Lancashire, and Somersetshire, was instrumental in suggesting to the Earl of Elgin the importation of Greek sculpture to England, and to his agency can be ascribed the Elgin collection. Harrison's architecture is wonderfully refined, such structures as the Castle at Chester and the Lyceum at Liverpool being characteristic of his scholarship. The works of the Wyatts belong to the same school.

Sir John Soane.

By far the most remarkable architect who rose to prominence during the late eighteenth century was Sir John Soane. Of him it may be said that no man did more for the advancement of architectural study, no man ever engendered such bitter opposition, few have devoted such care and attention to their work or endeavoured to teach others to reverence the esoteric art of architecture. He lectured as Professor of Architecture at the Royal Academy, and was suspended for two years for his criticism of other architects' works. He collected pictures, statuary, books, and drawings, which to-day are priceless in value. All these he made accessible to the students of the day and founded the Soane Museum, in itself a national asset of the first rank. In his studies he was indefatigable, while his drawings and designs show him to have possessed a mind capable of audacious flights of originality. Soane introduced central heating at a period when such a system was undreamt of; he contrived a system of fireproof construction offering possibilities for modern application, and developed the theory of academic planning for visual effects until it became in his hands pliant and tractable. As a pupil of George Dance, during the building of Newgate, he was brought into touch with the etchings of Piranesi, and these seem to have influenced him throughout his career. Chambers gave his advice on this point prior to Soane's leaving England to study in Italy: "From the onflowings of Piranesi much can be gleaned, although a deal of it is rubbish." Soane, and not Dance, was the true follower of the conventional scenery produced by Piranesi's imaginative rhetoric. The planning system demonstrated by Robert Adam appealed to the mind of the youthful Soane when he essayed his book on architecture, "Plans, etc., of Buildings Erected in Several Counties—1788." The career of Sir John Soane, together with a careful study of his drawings and buildings, should form part of the equipment of every architectural student. From his eventful life we learn the value of travel abroad; his collection of books proves that an architect need never be ashamed of a working library, and when such a collection is supplemented with casts and models, for comparison and selection, the opinions of the designer are strengthened. To quote Sir Joshua Reynolds, "By the study of authentic models the student receives at one glance the principles which many artists have spent their whole lives in ascertaining, and, satisfied with their effect, is spared the painful investigation by which they came to be known and fixed."

Soane's Merits and Demerits.

Soane's lectures at the Royal Academy gained a great deal of attention from the architects and students of the day, and although his immediate disciples were few in number, the soundness of his teachings was felt throughout the nineteenth century. The decorative system of Classic vaulting, carried to such perfection by Robert Adam, was further advanced and strengthened by Sir John Soane, who endeavoured to impart a certain Gothic interest to his domical and other vault surfaces, but his passion for tattooing Greek frets on every plain wall, at the sacrifice of legitimate architectural form, proved his weakness. While Soane was content to keep a restraint upon his exuberant imagination his work shines, as the magnificent archway from the Lothbury Court at the Bank of England clearly proves. Soane's great failing was want of decision; he worried his design and lacked confidence to leave well alone. In a slighter way than that exhibited in Vanbrugh's works, Soane allowed his obsession for a picturesque sky-line to master his taste for reticence. The upper portions of many of his buildings run to complexity by reason of the innumerable acroteria, vases, and finials introduced—one cannot say indiscriminately. The original finish to the Threadneedle Street façade of the Bank exhibited this fault until Professor Cockerell remodelled the work in 1850.

A Synopsis of Sir John Soane's Life and List of His Chief Works.

1753: Born at Reading, September 10th. The son of a small builder. 1768: Entered the office of George Dance; afterwards that of Henry Holland, until 1776. 1772: Silver Medal at the Royal Academy. 1776: Gold Medal. Introduced by Sir William Chambers to George III. 1777: In Italy. 1780: Returned to London. 1788: Obtained through the patronage of Lord Camelford the position of architect to the Bank of England. Held for forty-five years. 1792: Original member of Architects' Club. 1791: Appointed clerk of works to St. James's Palace, etc. 1795: Architect to the Office of Woods and Forests. 1807: Clerk of the works to Chelsea Hospital. 1807: First lecture at the Royal Academy. 1813: Grand superintendent of works to the United Fraternity of Freemasons.

Pupils.

J. H. Good, S. Burchell, D. Laing, John Sanders, R. D. Chantrell, A. P. Lee; G. Bailey, E. M. Foxhall, H. H. Seward, C. Malton, C. Tyrell, H. Parke, D. Mocatta, C. Wightman; J. Gandy and C. J. Richardson acted as assistants. All the foregoing carried the Classic tradition well into the nineteenth century.

List of Chief Works.

1784: Mulgrave Hall, Yorks. 1789: Blackfriars Bridge, Norwich. 1790: Buckingham House, Pall Mall (since pulled down). 1792: 12, Lincoln's Inn Fields. 1793: Teynham Hall. 1794: A house at Reading. Entrance gate at Hyde Park (since pulled down). 1797: 19, St. James's Square. 1801: Præd's Banking House, Fleet Street (still standing). 1804: The obelisk in the Market Place, Reading. Villa at Pitshanger, Ealing. 1805: No. 23, St. James's Square. 1808-10: New bank buildings (pulled down). Dulwich Picture Gallery. 1812: House in Park Lane. 13, Lincoln's Inn Fields (his own house as a museum). 1820-1: Houses in Regent Street (pulled down). 1820: The Law Courts at Westminster. 1822: Work at the House of Lords. 1829: Trinity Church, Marylebone. 1829-30:

Refaced the front façade of the Banqueting House, Whitehall, with stone. 1829: State Paper Office. 1788-1833: The Bank of England remodelled to its present form and numerous other buildings, totalling to over eighty works in all.

Briefly, the buildings of Sir John Soane take the highest models from the history of the world's architecture; they inherit the mighty spirit of antiquity, and while in theme elevated to the academic platform, and rekindling the flame of Classic inspiration, they are as English in tradition as other more frequently quoted buildings of the eighteenth century.

Soane, however, took too exclusive a view of his subject; he sought to push the personal element to an extreme, and endeavoured to make up by variety in incident what he considered needed improvement, namely, the continuity of tame detail. Had Soane avoided these eccentricities of taste, which he cultivated as novelties, the repose accruing to the aspect of his buildings would have been very great. Soane strained every nerve and faculty to advance beyond the limits of his own day, and by sheer genius stood alone. Such is the merit of his architecture and such the polish of his individual manner that whatever distaste we may experience for the exotic ornament, the greater architectonic value of rhythmic composition compels attention.

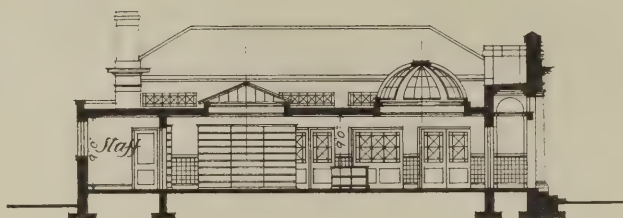
CHEAP RURAL COTTAGES.

Several of the chief landowners of the country are experimentally building cheap cottages which, while allowing them a margin of profit on their expenditure, give the agricultural labourer and his family proper accommodation at the current weekly cottage rents of the district.

Lord Salisbury is at present erecting on the Hatfield estate a pair of cottages at a cost of £130 apiece from a design by Mr. Arnold Mitchell. The cheaper £110 cottage by Mr. Mitchell has been adopted by some of the leading landlords who are in agreement with the general opinion that a solution of the rural housing problem can only be found in the standardisation of a cheap and yet sufficiently roomy form of cottage of the kind. The whole essence of the problem which was attempted to be solved was the designing of a cottage complying with the minimum requirements, which could yet be built as an economic undertaking and let at a rent which even the lowest-paid labourer could afford. The Hatfield £130 cottage, however, has been designed by Mr. Mitchell with a view to meeting every point of objection which has been raised to the £110 cottage.

Like the latter cottage, it contains five rooms, three of which are bedrooms, but it is larger and better finished. The designer also claims for it that, as it complies with the model rural housing by-laws of the Local Government Board, it will, presumably, also satisfy the by-laws of even the most exacting local authority and that it fully conforms to the schedule of accommodation for rural labourers' cottages set out in the recent report of the Departmental Committee of the Local Government Board. A further condition laid down by Lord Salisbury was that the cottages should be built by the local builder. This condition is being complied with, and the £130 per cottage has covered the rate of wages for labour and the price of building materials in the district. Hitherto no cottage has been built on the Hatfield estate for less than £200.

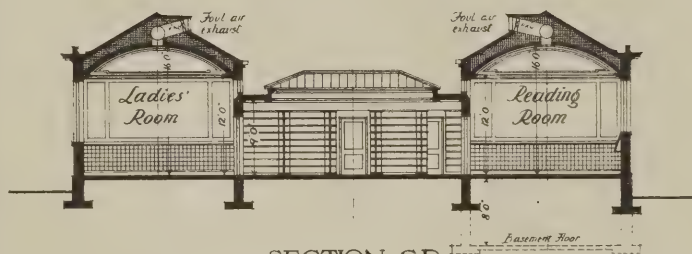
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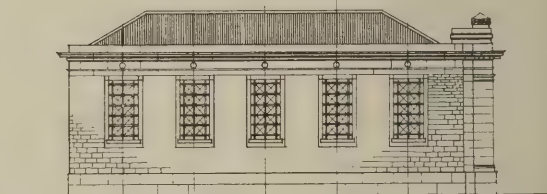
SECTION · A-B ·



· EAST · ELEVATION ·



SECTION · C-D ·



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PROJECTED NEW WORKS.

Public Baths, Ayr.

Ayr Town Council have approved the erection of public baths.

Baths, Mexbro'.

Mexbro' Urban Council have decided to erect new public baths. A site has already been secured.

Bridge, Renfrew.

A new bridge is to be erected over the Cart at Inchinnan Road, Renfrew, at a cost of £15,000.

Convalescent Home, Grindleton.

Blackburn Charity Commission proposes to build a convalescent home at a cost of £4,000.

Baths, Nottingham.

Plans of new baths for the Meadows, Nottingham, have been passed by the Local Government Board.

Municipal Workers' Dwellings, Willesden.

Willesden Council have appointed a committee to prepare a scheme for municipal workers' dwellings.

Children's Home, Hambledon.

Hambledon Guardians have resolved to build a children's home in the workhouse grounds at a cost estimated at £1,885.

Town Hall, St. Pancras.

St. Pancras Town Council have appointed a committee to consider the question of the provision of a new town hall.

Premises, Leicester.

Additional premises for the accommodation of cripples are to be built by the Leicester Cripples' Guild, at a cost of £1,300.

Works, Irvine.

A site three acres in extent has been secured by Messrs. A. Cunningham and Co. for the erection of a large extension of their hosiery works.

Picture Palace, Huddersfield.

Huddersfield Highway Committee have approved plans of a new picture house to be erected in Blacker Road, for the Palladium Picture Company, Ltd.

Houses, Lutterworth.

Sanction of the L.G.B. having been obtained to a loan of £5,140, Lutterworth R.D.C. are about to proceed with the erection of thirty houses.

Almshouses, Trowbridge.

Yerbury Almshouses, Trowbridge, are to be rebuilt. Mr. W. H. Stanley, of Market Chambers, is the architect, and Messrs. E. Linzey and Son will be the builders.

Fire Station Extension, Derby.

The L.G.B. have held an enquiry into the application by the Derby Corporation for sanction to borrow £1,700 for an extension to the central fire station.

Baths, Taunton.

Taunton Town Council have appointed a committee to prepare a scheme and estimate for the erection of slipper baths on a site at the electricity works.

Workmen's Dwellings, Normanton.

The L.G.B. have sanctioned the borrowing of £16,475 by the Normanton District Council for the purpose of erecting seventy-six houses, to be let at 6s. a week.

Workhouse Accommodation, Derby.

Derby Board of Guardians having considered a sketch plan submitted by Mr. F. C. Coulthurst for the proposed extension

to the upper male infirmary block, to make provision for sixteen additional beds, have resolved that the architect now prepare a proper plan, together with specifications and an estimate of cost.

Sanatorium, Saunderton.

A scheme is under consideration for the building of a sanatorium at Saunderton, Bucks, in connection with the Victoria Park Hospital for Chest Diseases.

Alterations, Edinburgh Royal Infirmary.

Plans have been passed for alterations and additions to the Edinburgh Royal Infirmary, Lauriston. Mr. A. Balfour Paul, of Edinburgh, is the architect.

Houses, Gwyrfa.

The L.G.B. have ordered the erection by the Gwyrfa R.D.C. of thirty-six houses, each with a living room, a scullery, and not fewer than three bedrooms.

Hospital Extension, Normanton.

Normanton and District Joint Isolation Hospital Committee has been authorised by the Local Government Board to borrow £4,833 for the extension of the hospital.

Drill Hall, Acrefair, Denbigh.

A new drill hall is about to be built at Acrefair, Denbighshire, for the Denbighshire Territorial Force Association. Mr. C. D. Rutter, M.S.A., of Wrexham, is the architect.

Children's Home, Melton Mowbray.

Melton Mowbray Guardians have received authority from the Local Government Board to purchase Brookfield House, at a cost not exceeding £975, for a children's home.

Sanatorium, Hawkmoor, Devon.

Plans have been submitted to the L.G.B. for the erection of new buildings in four blocks at Hawkmoor, for a sanatorium for consumptives, at an estimated cost of £18,000.

Sanatorium, Newton Mearns.

Plans prepared for the new sanatorium at Southfield Estate, Newton Mearns, by the Glasgow City Engineer, have been approved of by the Tuberculosis Committee of the Town Council.

Military Headquarters, Salisbury.

The building of military headquarters for the Southern Command at Salisbury will be begun next year. A new site has recently been secured adjoining the present temporary headquarters at Fisherton.

Banstead Asylum Remodelling.

A scheme for the remodelling of nine large blocks of the Banstead Asylum at an approximate cost of £47,205 has been outlined by the Asylums Committee of the L.C.C. with the object of permitting better classification and treatment of the inmates.

School, Stoke Newington.

Arrangements are being made to increase the elementary school accommodation in North Hackney. By modernising the Newington Green School 146 more places will be secured. It is proposed to build a new school at Stoke Newington to accommodate 1,200 boys and girls.

Various Works, Weston.

The L.G.B. have held an enquiry into applications made by the Weston U.D.C. for sanction to borrow sums of £11,000 for the erection of new slaughter-houses in Langford Road, £2,120 for wood paving to be laid in Waterloo Street and Regent Street, and £1,600 for the construction of what is known as the new "Middle Road to Worle."

Development Scheme, Worthing.

Worthing Town Council have under consideration a large scheme for the development of the Beach House estate. It includes the erection of a concert pavilion, a bandstand with shelters, and the laying out of terraces and grounds, the whole to cost £11,500.

Sanatorium, Noranside.

Forfar County Public Health Committee has under consideration plans for the alteration of the Mansion House at Noranside to form an administrative block for the proposed sanatorium, and for the erection of male and female wards. The cost of the scheme is estimated at £11,456.

Wardour Street to be Widened.

Westminster City Council have adopted a scheme which provides for the acquisition of portions of Nos. 68 to 76, Old Compton Street, and of so much of No. 54, Wardour Street as will be necessary for the widening of Old Compton Street, and also give a widening of Wardour Street to 40 ft. at that corner. The cost, exclusive of the street works, is estimated at £20,000.

Works at Blandford.

The late Alderman Barnes, of Blandford, who died recently, has left about £40,000 for charitable purposes. Among the bequests is £2,500 to buy a recreation ground, £1,000 for rebuilding the Church Almshouses, and £5,500 to the Barnes Home. After the death of his widow £9,000 will be available for building cottages for the poor, and a similar sum for building villas for indigent farmers.

Training College, Glasgow.

A beginning will be made early in the new year with the erection of a new training college for teachers at Jordanhill, Glasgow. The scheme, which has been promoted by the Glasgow Provincial Committee for the Training of Teachers, includes not only a training college, but a demonstration school and hostels or residences for women students. The whole undertaking is estimated to cost over £200,000.

Buildings, Glasgow.

A large number of linings were granted at a recent Dean of Guild Court, Glasgow. The North British Locomotive Co., Ltd., received authority to erect a flanging shop and material store in Blenheim Street; the North British Diesel Engine Works, to erect a pattern shop and store at Whiteinch; Frederick Braby and Co., Ltd., to erect buildings for new rolling mill plant in Petershill Road; and G. and J. Weir, Holm Foundry, Cathcart, to erect a foundry at Cathcart. An application for a picture house in Gourlay Street, Springburn, was granted.

New Municipal Works.

The Local Government Board have held or have decided to hold inquiries into proposed expenditure by public bodies as follows:—Holywell U.D.C. (amount included in that mentioned under sewerage) (December 16th); Dendraeth R.D.C., £4,600 for Trawsfynydd (December 17th); Isle of Wight R.D.C. for Chale, Kingston, and Shorwell, no amount stated (December 18th).

Sewerage, drainage, and sewage disposal.—Holywell U.D.C., £12,374; Canterbury Corporation, £6,500; Whitby R.D.C., £5,700 for Village of Sleights in the township of Eskdalside-cum-Ugglebarnby (December 16th); South Shields R.D.C., £2,000 for Bolden Colliery (December 17th); Newbury B.C., £2,550 (December 18th); South Shields R.D.C.

£9,950 for Bolton; Southampton B.C., £1,800 (December 19th).

Street Improvements.—Weston-super-Mare U.D.C., £3,720 (December 16th); Denton U.D.C., £9,463; Kendal B.C., £3,875 (December 17th).

Various.—Derby B.C., extension of central fire station, £1,700; Ilford U.D.C., refuse destructor and engine house for electricity undertaking, £21,578; Canterbury Corporation, extension of lunatic asylum, £25,000; Grimsby B.C., sanitary conveniences, including purchase of property, £1,100; Weston-super-Mare U.D.C., public slaughterhouses, £11,000 (December 16th); Kirkby in Ashfield U.D.C., refuse destructor near gasworks, £3,000; Dartford U.D.C., chapel and lodge at burial-ground, £4,000 (December 17th); Basingstoke B.C., electric lighting, £14,000; Oldham B.C., public washhouse, £3,300 (December 18th); Caistor R.D.C., £3,487, for housing at Caistor, Nettleton and Grasby; Leigh B.C., housing, £23,556, including land (December 19th).

Expansion of Stafford: Large Works Contemplated.

It is probable that a large extension of the sewerage works of Stafford will have to be made to meet the growth of the town. The cost is estimated at £10,000. The Town Town Council have an artisan building scheme in hand, the provision of eighty additional dwellings having been decided upon. A London syndicate has submitted plans for the erection of a coliseum, involving an expenditure of £20,000, and a commodious picture theatre to accommodate 1,000 spectators is in course of erection, at a cost of between £7,000 and £8,000.

New Works for Newport, Mon.

It is expected that within the next few days an agreement will be signed for the erection of new works by the British Mannesmann Tube Co. upon a site adjoining the river Usk at Newport. These works, which will be erected in sections, when complete will afford employment for 3,000 men, and will mean an addition to the population of 10,000. About 80 acres have been acquired on the east side of the Usk, just below Messrs. Lysaght's sheet-iron works, and about three miles from the mouth of the river. The company already have works at Landore, near Swansea, but as extensions were impossible there it was found necessary to look for another site, and after sites had been inspected in other towns, Newport was provisionally selected. The Abertillery Pitch and Benzol Co. have acquired a site for new works at Pontnewydd, in the Eastern Valley of Monmouthshire.

THAMES-SIDE TOWN PLANNING SCHEME.

The Local Government Board has taken the unusual course of suggesting to the Teddington District Council the wisdom of preparing a town planning scheme so as to preserve the amenities of their riverside, which stretches from a point opposite to the Kingston boundary to that of Twickenham parish. Richmond, Ham, and Twickenham have each proceeded with the preparation of schemes, and have brought within them several miles of river frontage, and with the adoption of the Board's suggestion, which the Teddington Council has favourably considered, the whole of the river frontage between Kew and Kingston Bridges will have been scheduled, with the exception of half a mile in the vicinity of Kingston Bridge.

NEWS ITEMS.

Théâtre Edward VII., Paris.

The entire work of building, decorating, and furnishing the Théâtre Edward VII., in the new street in Paris, has been carried out, in record time, by Messrs. Hampton and Sons, Pall-mall, London, under the direction of Mr. W. G. R. Sprague.

A Record Skyscraper.

Plans are being considered by the Pan-American Association for the erection of what will be the highest building in the world. "Las Americas," as the building is to be called, is to be erected on a site on Broadway, New York. It will be 801 feet high and will cost £3,200,000.

King Edward's Statue, Aberdeen.

The Finance Committee of the Aberdeen Town Council have had under consideration the scheme of improvement at the junction of Union Street and Union Terrace in connection with the preparation of the site for the memorial statue of King Edward. Mr. A. Marshall Mackenzie, A.R.S.A., has presented a report on the scheme, which is estimated to cost £4,550.

Manchester Exchange Extension.

At a meeting of the stockbrokers of the Manchester Royal Exchange last week Sir Arthur Haworth, the chairman, gave the following dates for the various stages of the new extension of the Exchange buildings: Last day for sending in plans, January 2, 1914; award to be made, middle of January, 1914; pulling down of old buildings, end June, 1914; rebuilding to start, September 1, 1914; extension to be completed, May, 1916.

Restoration at Chester Cathedral.

The restored cloisters of Chester Cathedral and a rood erected on the choir screen were recently dedicated. The work on the cloisters has been carried out, under the direction of Mr. Gilbert Scott, by Messrs. J. Thompson and Sons, Peterborough. The rood is the gift of the Rev. Wilfrid J. Stanton, of Thelwall Hall, Warrington. The architect and builders are now engaged in restoring the ancient refectory.

School of Oriental Studies.

Pending the establishment of a governing body for the School of Oriental Studies, the responsibility of supervising the adaptation of the buildings of the London Institution for the purposes of the school has been entrusted by the Government to the Departmental Committee of the India Office presided over by Lord Cromer, acting in conjunction with the Office of Works. The committee have approved the plans submitted by the architect, Professor F. M. Simpson, F.R.I.B.A. Some time must necessarily elapse before the working drawings are completed and the building contracts settled, but it is hoped that operations may be begun in April and that the work may be completed at the end of 1914 or the beginning of 1915.

Rural Districts and Building By-laws.

In the course of a paper on "Building By-Laws," read recently before the British Constitution Association, Sir William Chance said every urban sanitary authority could make by-laws with respect to streets and their sewerage, the structure, ventilation, drainage, and sanitary arrangements of new buildings, the submission of plans, etc., but they had to be confirmed by the Local Government Board. As was usual

when any by-laws and regulations were not laid down in an Act of Parliament, but left to public bodies to draw up, much dissatisfaction was engendered, and this resulted in the formation of the Building By-Laws Reform Association. That Association drew up a Bill which passed through the House of Lords in an amended form, and when the Association ceased to exist in 1912 the British Constitution Association accepted the responsibility of continuing the work. The Bill would introduce just that elasticity which was so much needed into the operation of building by-laws, and at the same time it carefully provided that nothing should be done contrary to the interests of the public health.

New Director for British School at Athens.

At the last meeting of the Court of St. Andrews University a letter was read from Mr. A. J. B. Wace, M.A., Lecturer in Ancient History and Archæology, intimating that he has accepted the directorship of the British School of Archæology at Athens, and resigning his lectureship in the University as from the end of the current academical year. Mr. Wace stated that it will be part of his duties, as director of the School at Athens, to give, at Oxford and Cambridge in October each year, a lecture on the latest excavations by the School in Greece, and he hoped the Court would allow him to give an annual lecture at St. Andrews as well, so that his connection with the University should not be altogether broken. The Court accepted with hearty thanks Mr. Wace's proposal. Mr. Wace was a scholar and is now a Fellow of Pembroke College, Cambridge. He obtained a first-class in the Classical Tripos, Part I., 1901, and also in Part II., 1902, with special distinction in archæology. In 1902, and again in 1904, he was elected to the Prendergast Greek studentship, and in 1903 to the Craven studentship. He is a corresponding member of the Imperial German Archæological Institute.

Town-Planning Schemes.

A considerable number of local authorities in Scotland are organising town-planning schemes which, if carried out, will involve a good deal of engineering work, and will at the same time encourage the laying out of new residential districts and the construction or provision of sewage disposal works, transport facilities, and water, electricity, and gas supplies.

The Corporation of Glasgow have scheduled extensive districts in Kennyhill and Riddrie, on the eastern boundary of the city, and in Kelvinside, Temple, Jordan Hill, Whiteinch, Scotstoun, Yoker, Drumchapel, Scotstounhill, and Knightswood on the west, which they consider as "in course of development or likely to be used for building purposes." They propose to apply to these areas the provisions of the Town Planning Act, so as to ensure the proper laying out of the ground and its efficient administration from a sanitary point of view.

The County Council of Dumbarton propose to apply the Act to an area within the parishes of Old Kilpatrick and New Kilpatrick, to the south-east of the burgh of Dumbarton, and stretching along the Clydeside eastward to the burgh of Clydebank and the city of Glasgow, and northward farther than—but excluding—the burgh of Milngavie. The greater part of this area is at present open country, but so rapidly are industries developing and extending along the north bank of the Clyde that much of it is likely to be built up within a few years.

CONCRETE AND STEEL SECTION.

(MONTHLY.)

FALLACIES IN CEMENT TESTING.*

BY W. LAURENCE GADD, F.I.C., M.C.I., ETC.

IN these days the testing of cement is no longer exclusively in the hands of the expert; almost every user of cement in any quantity now carries out his own tests on the material he buys, or has such tests made for him by his own staff. In some instances this has meant that the cement is judged on results obtained by very inexperienced persons. It may be an excellent thing, from the users' point of view, to test his own supplies, but there is a danger that the practice may lead to numerous unfounded complaints and disputes as to the quality of those supplies.

The British Standard Specification.

My object, however, is not so much to question the accuracy of the testing performed by inexperienced operators as to draw attention to what are, in my opinion, fallacies underlying some of the recognised or suggested processes of testing Portland cement; and at the outset I find myself at variance with the British standard specification itself.

The standard specification stipulates that before any sample of cement is submitted to certain tests it "shall be spread out for a depth of three inches for twenty-four hours in a temperature of from 58 to 64 degrees Fahrenheit."

The object of this procedure appears to be two-fold, *i.e.*, (a) to cool the cement to the normal temperature of the atmosphere, and (b) to obtain conditions similar to those governing cement which has lain in sacks or casks for two or three weeks—*i.e.*, during the possible period between shipment and use.

As regards (a) this can be very simply done without exposing the sample to air. As regards (b) experiments prove that cement kept in sacks, under ordinary conditions of dry storage may either become slower or quicker setting, but the result cannot be foretold. The results of tests show that there is no relation between the effects of aerating cement for twenty-four hours and storing in sacks for two weeks or a month; further, that the setting time is differently affected when the same cement is aerated or stored in bulk in different localities or at different periods. In some cases the effect of twenty-four hours' aeration is the opposite to that produced by storage; and storage or aeration at one period has an opposite effect to storage or aeration at another period. For instance, a sample aerated for twenty-four hours at the beginning of the month of July resulted in a quickening of both initial and final sets, whereas the same sample aerated for twenty-four hours, in the same room, a fortnight later, resulted in the exactly opposite effect in setting time.

This appears to me effectively to dispose of the somewhat prevalent idea that changes in setting time are due to some inherent property of different cements. The erratic behaviour found is common to all the samples tested, the composition of which varied within considerable limits,

the lime contents, for instance, ranging from 64 to 59 per cent.

The retardation or acceleration of setting time on storage or aeration cannot, therefore, be due to peculiarities in the cements themselves, but must be due to chemical changes brought about by the absorption of some constituent present in the atmosphere.

Cement has a strong affinity for moisture in the first place, and for carbonic anhydride in the second place, and these constituents are present in the atmosphere in variable proportions at different times and in different localities.

From former experiments and reasoning I have held the opinion that absorption of moisture results in a retardation of setting time; whilst absorption of carbonic anhydride produces an accelerating effect. Cement exposed to both influences will therefore have its setting characteristics affected one way or the other according to the relative amounts of moisture and carbonic anhydride absorbed, the net effect being the resultant of the two opposing forces.

Fineness.

The British standard specification stipulates that the fineness of grinding shall be such that not more than a certain percentage of residue shall remain upon a sieve of a stipulated mesh under the conditions of the test. It is obvious that the most important point in this connection is to ensure that the sieves used shall be of standard and definite dimensions, and this is provided for by the following clause:

"The sieves shall be prepared from standard wire, and the diameter of the wire for the 5776 mesh shall be .0044 in. and for the 32400 mesh .002 in. The wire cloth shall be woven (not twilled), the cloth being carefully mounted on the frames without distortion."

The standard specification therefore stipulates that for the first-named sieve there shall be 76 warp and 76 weft wires of a definite diameter; and for the second sieve 180 warp and 180 weft wires of a definite diameter per square inch.

When sifting cement through a sieve to obtain the proportion of particles too large to pass through the interstices between the wires, the size or area of the individual holes appears to be the only condition of importance; and it is to be assumed that the intention of the framers of the specification was to ensure this condition being standard.

If a definite number of wires of a definite thickness be *equally* spaced throughout the unit of measurement, the spaces between the wires will be of definite and equal area; but the weaving of wire cloth has not yet attained such a standard of excellence as to ensure that the wires (especially in the finer counts) are spaced equally throughout the piece, or even throughout any individual inch; and I have examined many rolls of cloth which contained the stipulated number of threads, of practically the correct diameter, and yet were hopelessly inaccurate

for the purpose of testing cement for fineness.

I submit that the size or area of the holes in a sieve is the real standard and should be stipulated, the actual diameter of threads, or their precise number per inch, being of secondary importance.

Specific Gravity.

The specific gravity test is now used in place of the old method of taking the weight per struck bushel, which has for some time been discredited, and rightly so.

The weight per bushel had no real bearing upon or relationship to the degree of calcination, but was chiefly influenced by the fineness of grinding. The fallacious character of this test was well known to cement experts long before its abolition from so-called up-to-date specifications, in some of which it appears, even to-day, as the "weight per litre test."

The specific gravity test is still retained in the British standard specification, and is considered by most people to fulfil the functions formerly attributed to the bushel weight test, *viz.*, to detect the degree of burning to which the clinker has been subjected, or, in other words, it is a test for under-burned cement. This, however, is a fallacy. The specific gravity of cement affords no indication of the degree of calcination, and it has long been known that the figure was affected much more by atmospheric influence than by any difference in burning. This is recognised by the standard specification so far that the specific gravity is stipulated to be 3.15 when freshly burned and ground, and 3.10 when the cement has been ground for one month. This difference of .05 is a greater difference than lies between the gravities of good clinker and the lightest under-burned "yellow" respectively.

The specific gravity of carbonic anhydride and of water being .88 and 1.00 respectively, it will be readily seen that comparatively small proportions of these substances, absorbed from the atmosphere, are sufficient to reduce the gravity of cement to a material extent.

Butler has shown that if the absorbed water and carbonic anhydride be expelled by igniting the cement, the specific gravities of cements of various makes become so nearly identical as to afford no indication of quality.

The conclusions reached by Butler were: (1) That the specific gravity of cement is no indication whatever of proper calcination. (2) That the specific gravity depends upon the age of the cement and the opportunities it has had of absorbing water and carbonic anhydride from the air.

These conclusions are quite in accord with the experience and the opinion held by myself for some time past.

Standard Sand.

There is a somewhat general idea that tensile or crushing tests of cement with standard sand represent the best results of which the cement is capable. This is erroneous. Sand tests do not give the highest results which can be got out of the cement, but give results which are

* Extracts from a paper given at the Concrete Institute on Thursday, December 11th.

standardised, and therefore comparable with those obtained by different operators. The crushing strength, especially, of concrete or mortar, depends largely upon the size and character of the aggregate, the absence or presence of dust, clay matter, and other things, and the density of the mass. The use of standard sand merely gives results which are comparable, and only represent the strength of a cement when tested under certain conditions and with an aggregate of a definite size and character.

Free Lime.

No theory connected with Portland cement has obtained a stronger hold, or has attained such hoary antiquity, as the idea that unsoundness of cement is due to free lime locked up within the particles of the ground material. In fact, this theory has been for so long accepted that to question it may possibly be met with derision.

Nevertheless, I confess I have never been a believer in this bugbear, the existence of which has never been demonstrated, although many abortive attempts to do so have been made. Certainly free lime, in the sense in which it has generally been understood, cannot produce the blowing or disruption which occurs with unsound cement, because an addition of free lime, in the form of ignited calcium oxide, has the effect of reducing expansion by inducing the hydration of particles of hard clinker grit, in the same way as ammonia or ammonium carbonate.

The improvement in soundness, brought about by the exposure of cement to a damp atmosphere, lends some apparent support to the contention that free lime is thereby slaked and rendered harmless; but it is rather difficult to understand how the small amount of moisture absorbed from the air penetrates the particles and slakes the free

lime when the enormously greater quantity of water used in gauging the cement fails to touch it. Furthermore, unsound cement stored for some time in airtight re-

ceptacles, in which presumably no slaking of free lime can occur, becomes perfectly sound.

Exposure of cement to air for a few days sometimes results in an increase in the amount of expansion, as tested by the Le Châtelier method, and this increase is nearly always proportionate to the amount of aëration undergone, *i.e.*, the thinner the layer in which the cement is laid out, the greater the increase of expansion.

My own view is that unsoundness in cement is probably due to the presence of an abnormal silicate, perhaps dicalcium silicate, which is an unstable compound and slowly disintegrates with an increase in volume. The phenomenon of "creeping clinker," known to cement makers, is an illustration of the disintegration, with increased volume, of dicalcium silicate, which is formed when clinker contains an insufficiency of lime, and this or a similar compound is most likely to be found in unskillfully made cement in which the proportions of lime, silica, and alumina are not present in correct combining weights, or when the temperature of burning is insufficiently high to induce the formation of those silicates and aluminates which constitute true Portland cement.

A REINFORCED CONCRETE DOME.

Reinforced concrete is gradually coming into use for schools, especially for floors, roofs, foundations, and swimming baths, where it is found to be most economical for this class of building.

The school of which illustrations are given has recently been completed at Ilkeston for the Derbyshire Education Committee, the architect being Mr. G. H. Widdows, F.R.I.B.A., of St. Mary's Gate, Derby.

The schoolrooms are arranged in the shape of a square, one storey in height



SECONDARY SCHOOL, ILKESTON: VIEW OF REINFORCED CONCRETE DOME.



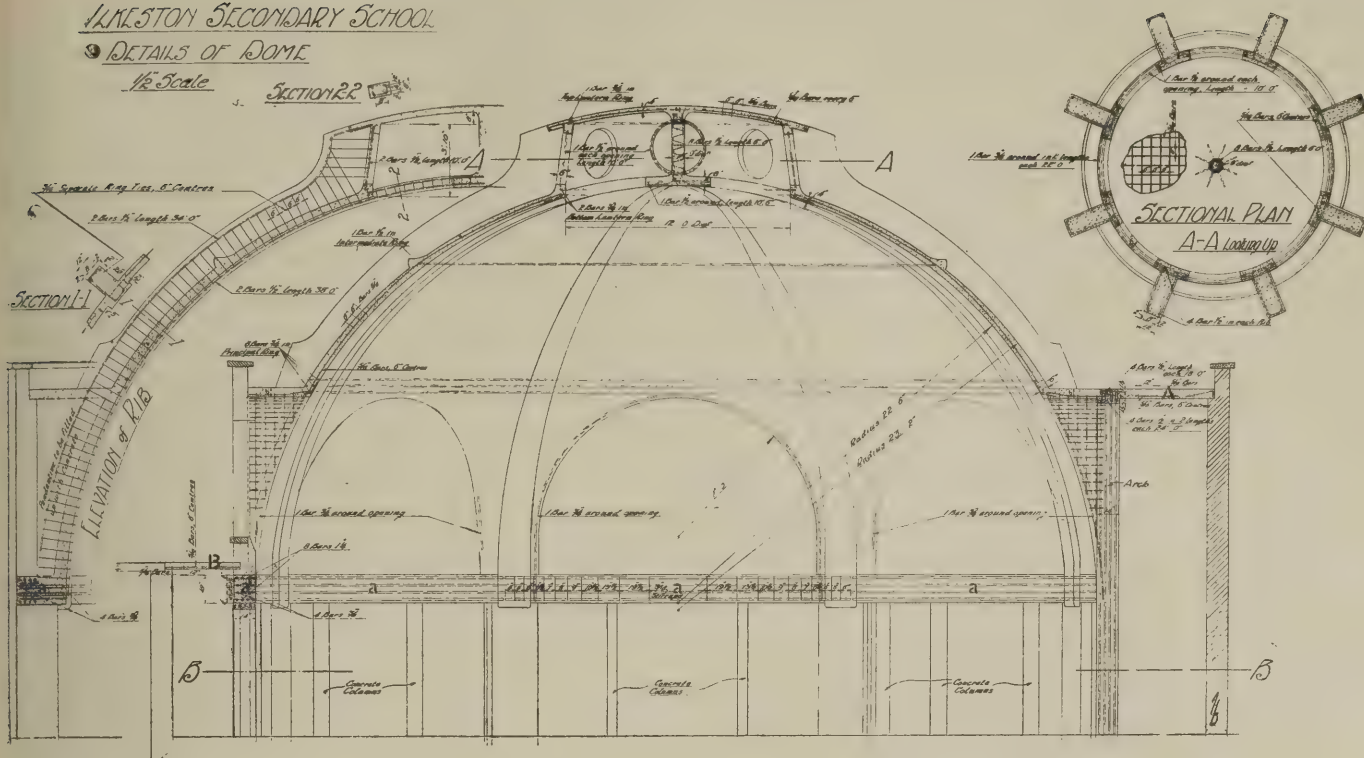
SECONDARY SCHOOL, ILKESTON: CENTERING FOR REINFORCED CONCRETE DOME. GEORGE H. WIDDOWS, F.R.I.B.A., ARCHITECT.

ILKESTON SECONDARY SCHOOL

DETAILS OF DOME

1/2 Scale

SECTION R-R



SECTION C-C

SECONDARY SCHOOL, ILKESTON: DETAILS OF REINFORCED CONCRETE DOME CONSTRUCTION.

only, with a flat roof in reinforced concrete. There is a large inner court, in the middle of which a central hall has been constructed with passages leading to it. The dome of the central hall is built in reinforced concrete, the construction being shown by the accompanying drawings. The walls of the schoolrooms and of the central hall and passages are in brickwork, but all the flat roofs, suspended floors, and the dome are in reinforced concrete.

The reinforcement of the dome is composed of round bars of mild steel. The concrete is covered with a finishing coat, $\frac{3}{4}$ in. in thickness, of cement and granite dust, the inside rendering being composed of sand and cement.

The flat reinforced concrete roofs over the schoolrooms are finished with a $\frac{3}{4}$ -in. coat of Val de Travers asphalt laid to a sufficient fall to carry the rainwater away.

The entire building was executed by Messrs. Evans Bros. (the Derbyshire and Notts Coignet Contracting Co.), of Alfreton, and the working plans for the reinforced concrete were prepared by Messrs. Edmond Coignet, Ltd., of Westminster, S.W.

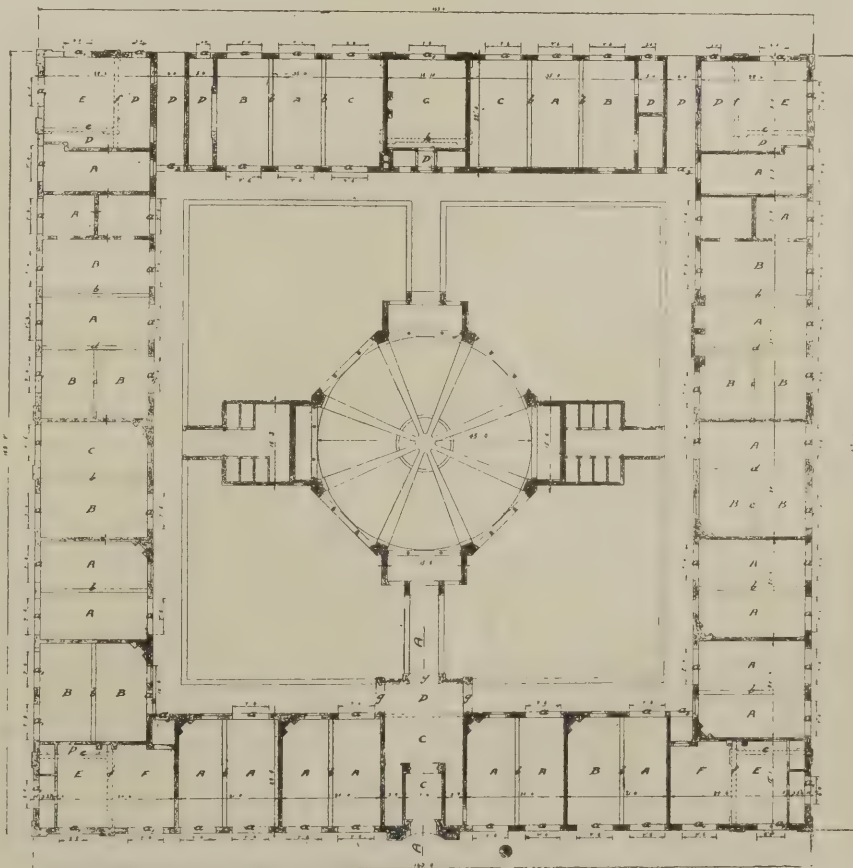
The general principle governing this system is the use of round bars of mild steel. The pillars are formed usually by four or more vertical bars surrounded by a spiral wire binding. The beams are formed by groups of bars to take the tension, with the ends of the bars bent upwards and hooked to the top longitudinal bar. The bent portion, being at an angle of 45 degrees, is meant to resist shearing effects, and additional vertical stirrups of small diameter are also introduced between the top and bottom reinforcement of the beam. The floor slabs are composed of a meshwork of principal and secondary bars, and the calculations are based on the rules of the R.I.B.A. for reinforced concrete.

The cement for this work was supplied

by Messrs. Kaye and Co., Ltd., of Rugby, and the steel bars by Messrs. Dorman, Long, and Co., Ltd., of Middlesbrough.

The most interesting part of the structure is, of course, the dome, which is in

the shape of an octagon, and has a diameter of 45 ft. and a total height, measured from the ground to the apex, of 35 ft. It is supported by piers constructed in blue brick and cement mortar.



SECONDARY SCHOOL, ILKESTON: GROUND-FLOOR PLAN, LOOKING UP.

GEORGE H. WIDDOWS, F.R.I.B.A., ARCHITECT.

DETAILS OF STEEL FRAMEWORK CONSTRUCTION.

The Roman Catholic church of St. Jean Baptiste, New York, now in course of erection, is an extremely interesting building from the structural point of view. It is cruciform on plan, about 99 by 225 ft. in extreme dimensions and 80 ft. high to the ridge of the main roof. The nave and transept, each 40 ft. wide, have double-pitched roofs, except at their intersection, over which is a high dome 40 ft. in diameter.

The main nave and transept are about 66 ft. high from the floor to the ceiling. All of the floors are of beam and girder construction, and the columns in the walls of the clerestory are connected by longitudinal plate girders carrying the clerestory walls. The main roofs of the nave and transept are carried on I-beam purlins supported by riveted trusses of 40-ft. span. Steel beams suspended from the inclined lower chords of trusses carry the vaulted ceiling.

The four main roof trusses carrying the nave and transept roofs at their intersection form a 40-ft. square, and have full-depth riveted connections to the four main columns, each of which sustains a load of approximately 276 tons and is made up of two 15-in. channels and four 17-in. cover plates. These trusses carry not only a portion of the main roofs but also the entire weight of the dome and its masonry walls and steel framework, estimated at 1,104 tons, including the load from the wind pressure on the dome.

These trusses are extremely heavy and of special construction, with shop-riveted connections at all panel points except at the centre and ends, where they were field-riveted to allow the trusses to be shipped in halves. The top and bottom chords are made of two pairs of channels, each pair being riveted together, back to back, with heavy gusset plates between them; both top and bottom flanges are connected by tie plates and lattice bars. Most of the vertical web members are pairs of channels, and the inclined web members are pairs of angles.

The base of the dome is a circular steel framework, 40 ft. in diameter and about 27 ft. high, with double annular top and bottom plate girders connected by twelve circumferential columns with their flanges riveted between the webs of the inner and outer girders. The tops and bottoms of the columns are knee-braced by solid-web brackets stiffened by flange angles and riveted to the girder flanges, with clearance between them for large windows in each of the panels between columns.

The inside flange angles were cut to clear the columns, and both top and bottom flanges were connected by shop-riveted tie-plates intermediate between the columns; but there were no transverse diaphragms between the webs, which are connected only by the columns passing between and field-riveted to them. The sections of the girders are spliced together by field rivets through the end vertical web stiffeners and through top and bottom flange cover plates. The kneebraces are shop-riveted to the top flanges of the girders and shop-riveted to the short lower sections of the columns, the upper section of the columns being field-riveted between the kneebrace plates, which also serve as column splice plates.

The upper ring of the dome frame consists of a deep exterior annular girder and a shallower interior annular girder, riveted across both faces of the column. The outer girder and inner girders are similar

in many respects to the lower girders. The tops of the columns terminate at about the middle of the inner girder web, where they meet the lower ends of the dome ribs in the same radial planes. The dome ribs are riveted between the girder webs, in the same way as the columns and the girder webs serve to splice the ribs and columns together.

The principal framing of the dome proper consists of twelve radial trussed ribs with their lower ends connected to annular girders and their upper ends connected to the drum. The trusses are about 32 ft. high and 9 ft. deep at the crown, with a clear span of about 16 ft. The outer flanges are battered about 1:8, and about 20 in. from the lower end they are bent vertical to engage the webs of the circular girders. At the upper ends of the trusses these flanges and web members are field-riveted through their gusset plates to vertical connection angles on the exterior of a web of a cylindrical plate girder, 10½ ft. deep and about 9 ft. in diameter, which forms the drum at the top of the dome. The drum has a ¾-in. web plate and pairs of 6 by 6 in. flange angles.

The top of the dome is accessible by an exterior curved steel ladder bracketed to the dome ribs and set clear of the roof masonry. A footbridge between the dome ribs, just above the haunches, connects this ladder with a door through the drum web.

The dome is surmounted by a steel lantern with a circular framework 6½ ft. in diameter and about 2½ ft. high. It has eight radial ribs made up of vertical 4-in. I-beams, with the upper ends curved to support a domed roof and field-riveted to

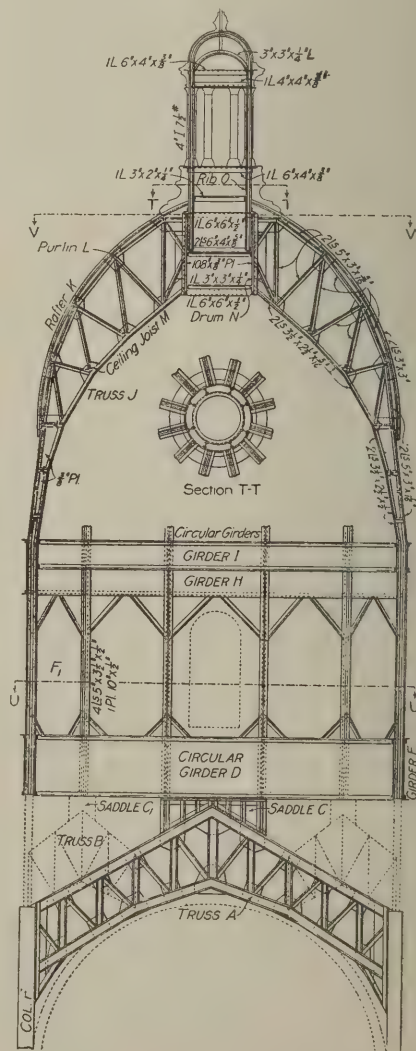
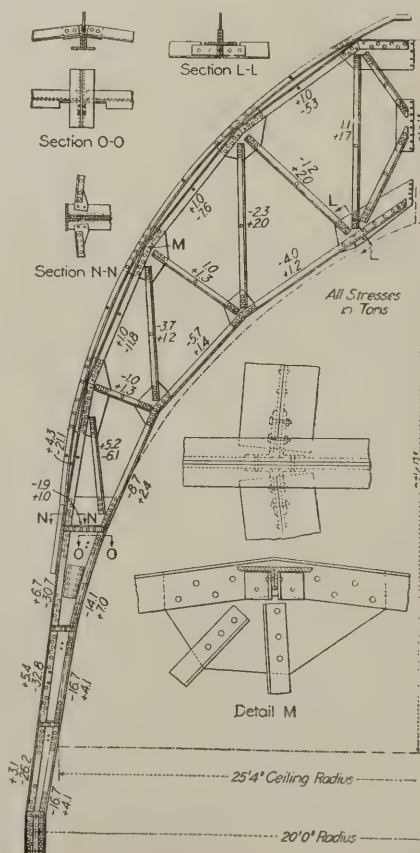
top and bottom flange centre plates, which are pierced with a 1½-in. hole for a vertical steel cross-shaft. About 26 in. below this connection the shaft engages another horizontal spider plate connecting the upper ends of eight curved angles supporting the framework of the inner dome which carries the ceiling.

NOVEL TYPE OF CONCRETE CONSTRUCTION.

A type of construction possessing some novel features has been invented by an engineer in the United States. The system is called "Lewen System of Mouldless Concrete." The characteristic feature is the erection of corrugated sheet-iron plates that act first as forms and afterwards as reinforcement. After the foundations have been finished the sheet-metal plates for the first storey are erected. These plates are anchored to each other so as to take up the outward pressure of the wet concrete. The outside plates are somewhat longer than the inside ones, extending above the floor level of the future slab. After the concrete has been filled in and the floor slab finished, the plates for the second storey are erected, serving to interlock the outer plates with the projecting part of the outside sheeting. For the inside plates, however, a small channel made of sheet metal is placed on top of the floor slab. The floors are made by placing concrete on top of plates erected in place. After the structure is finished the outsides of the plates are plastered.

The inventor states that for walls in

CHURCH OF ST. JEAN BAPTISTE.
NEW YORK: DETAILS OF DOME
CONSTRUCTION.



which the sheets are not more than 4 in. apart only one anchor between the plates necessary per panel to take up the outward pressure of the wet concrete.

COMPETITIONS.

Town Hall, Barnsley.

Barnsley County Borough Council, having decided to erect a new town hall on a site in Church Street, Barnsley, invite architects to submit designs and estimates. A fully qualified assessor will assist the Council in adjudicating upon the plans. A premium of £100 will be awarded to the design placed first, £50 to that placed second, and £25 to that placed third. The decision of the assessor shall be final as to the award of premiums, but the Council reserve to themselves the right to make a choice from any one of the plans placed in the first six, in order of merit, by the assessor. In the event of the plans of any one in the first three being selected by the Council, the premium payable to the architect will be merged in his commission.

All questions relating to the competition must reach the Town Clerk not later than February 1st, 1914, and a list of such questions, and of the answers thereto, will be supplied in due course to competitors. Any question received after February 1st will not be considered.

Designs to be marked externally "Barnsley Town Hall Competition," and must be delivered to W. P. Donald, Town Clerk, Town Hall, Barnsley, not later than the 1st, 1914.

The block plan of the site, with spot levels, etc., is for the preliminary or competitive designs only.

The architect whose design is selected to be carried out must, before preparing contract and general working and detail drawings and plans, take his own surveys and levels of the site and be responsible for their accuracy.

The front of the building to face Church Street must be not less than 90 ft., and not more than 105 ft., (measured from the far side of Church Street (*i.e.*, the side not the property of the Council). Between these limits the frontage is left to the discretion of the competing architect. The northern boundary of the building (at right angles to Church Street) is indicated on the site plan.

SCHEDULE OF ACCOMMODATION TO BE PROVIDED.

Town Clerk's Department.

One private office for Town Clerk, one general office (staff of six), one chief assistant's room, one additional room, one large strong room in basement.

Borough Surveyor's Department.

One private office for surveyor, one inquiry office, one general clerk's office, one building and drainage inspector's office, one drawing office, with good light, one storeroom, one small room for samples and for testing purposes, one strong room for plans and valuable books and documents, one room in basement.

Waterworks Manager's Department.

One small office for a clerk, one general manager's office.

Borough Accountant's Department.

One private office for Borough Accountant, one general office (staff of ten), one large strong room in basement (provision to be made in it), one Rate Collector's Office (safe accommodation also

required; staff of three at present), one audit room or spare room.

Sanitary Department.

Two rooms, one private room for Medical Officer of Health, one clerk's office, one waiting-room, laboratory accommodation.

Education Department.

One private office, one office for Chief Clerk, one general office (staff of six), one school attendance office and waiting-room, one additional committee room, one large store-room, one strong room, in basement.

Overseers' Department.

One private room, one general office.

Weights and Measures Department.

Two rooms in basement.

SUGGESTED LIST OF ACCOMMODATION OTHER THAN FOR OFFICE PURPOSES.

Council Chamber, to seat forty-eight members and ten officials, with limited number of seats for general public, committee rooms (two), Mayor's parlour, retiring room, reception room for Mayoress, caretaker's apartments, lavatories and w.c.'s on each floor, cloak rooms on ground and first floor, entrance hall and staircase, kitchen, heating apparatus, coal store.

The style of architecture is left to the competitors, but the Council intend that the outside walls of the building shall be of stone. Subject to these conditions, and to the necessity of providing buildings which will be thoroughly efficient, and of sound workmanship, the Council desire economy to be studied as far as possible.

Drawings Required.

(1) A block plan of the site only, drawn to a scale of 20 ft. to an inch, showing the position of the building, drainage, etc.

(2) A plan of each floor (including basements), drawn to a scale of 8 ft. to 1 in.,

showing the internal fittings of the various rooms—desks, fireplaces, etc.

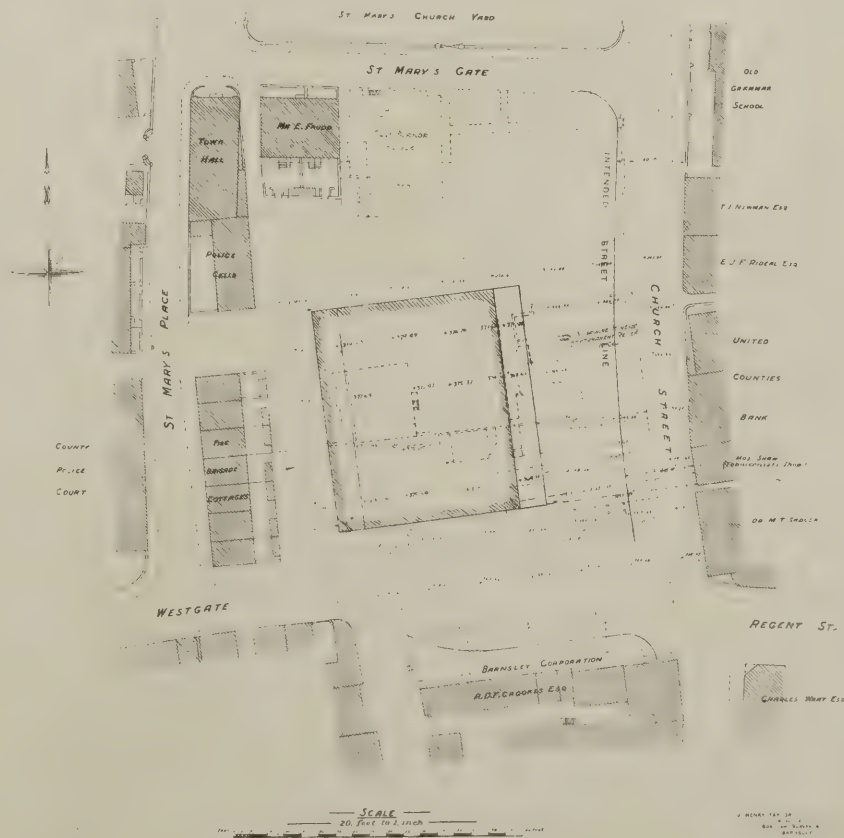
(3) At least two sections, one of which must be through the council chamber and entrance hall, and not less than four elevations, of the building, drawn to a scale of 8 ft. to an inch, with the mode and principle of ventilation shown thereon.

All drawings to be on sheets of plain white paper of uniform double elephant size, mounted on stretchers, without any coloured margins and without frames, and to be executed in Indian ink. No colour to be used on the elevations, but the door and window openings may have a flat wash of light Indian ink or black.

REPORT AND ESTIMATE.

The drawings must be accompanied by (a) A description of the buildings as short and concise as possible, giving such information as cannot be clearly shown on the drawings, and describing the sanitary appliances and the arrangements for heating and ventilation. (b) A short description of the materials to be used in the buildings. (c) A statement showing the dimensions and actual working out in figures of the cubic contents of the buildings, calculated from the bottom of the footings to half-way up the roofs, and an estimate of the cost based on this statement. The cubic contents and estimates of each building must be stated separately, as well as the price per cubic foot upon which the estimates are based.

The estimate must include drainage, sanitary appliances, heating and ventilation, water supply, electric light, motor and gas services and fittings, and all contingent works and permanent fixtures, boundary walls, railings, and gates for the site of the town hall only. The estimate is not to include the cost of furniture and loose fittings, which will be specially selected and purchased by the Council.



BARNISLEY TOWN HALL COMPETITION: SITE PLAN

COST.

The maximum amount which the Council are prepared to expend on the buildings as above described is £20,000, which includes all the items previously specified, and all professional charges, including architect's commission, quantity surveyor's fees, and final measurement of the building.

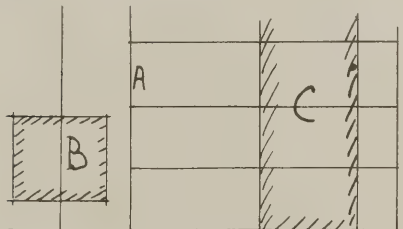
Each set of drawings is to be sent in anonymously, and to be accompanied by a plain sealed foolscap envelope, containing the author's name and address, and containing also a declaration, signed by the competitor, stating that the designs are his own personal work, and that the drawings have been prepared in his own office, under his own personal supervision. No distinguishing mark, motto, or device is to be put on the drawings, description, estimate, envelope, or case by the competing architects or their agents.

The architect who is employed to carry out the work shall receive from the council for due performance and execution of professional services, and for the setting out and superintendence of the erection of the whole buildings, etc., a fee of 5 per cent. upon the actual amount of accepted tender.

ENQUIRIES ANSWERED.

Boundary Fence Question.

S. H. writes: "In the accompanying sketch B is new and C is old property. A is the old back fence and the palings are fixed on C side. Usually the fence would belong to B, but would this hold good when, as in this instance, C is much older than B? The fence will have to be renewed, and the question is will B or C have to bear the cost?"



—Prima facie, the ownership of a pale fence is vested in the person upon whose side the pales are not fixed, it being assumed when he originally erected the fence he did so on the extreme edge of his property and that he drove his nails homewards. In this case it may perhaps be that B erected the fence before the date when C's houses were built, and unless there is evidence to the contrary, I am of opinion that the liability of maintaining the palings falls on B. You should consult the plan on the conveyance of your property, if it is available. F. S. I.

Waterproofing American Buildings.

Writing with reference to the plate of the Post Office Building, Eighth Avenue, New York, published in our issue for December 10th, Messrs. Spicer Brothers, Ltd., state that the whole of the walls were waterproofed with Messrs. Toch Brothers' "R.I.W." No. 232 paint. The Pennsylvania Railroad Station was also treated in a similar manner, over sixty gallons of Tockolith and "R.I.W." paints and liquid Konkerit having been used on the work.

Mr. John Belcher's Will.

Mr. John Belcher, R.A., F.R.I.B.A., left estate of which the net personalty has been sworn at £23,758. He left all his property to his widow.

LONDON MASTER BUILDERS' ASSOCIATION.

A conference, held at the invitation of the London Master Builders' Association, on December 23rd, was attended by two delegates from each of the eight trade societies out of the nine with which working rule agreements exist.

The President, Mr. Walter Lawrence, jun., pointed out that since May last 20 strikes had taken place, that the labourers had been involved in thirteen, bricklayers twelve, plasterers nine, carpenters and joiners five, crane drivers three, plumbers one, masons one, and all these disturbances had taken place owing to the refusal of the trade unionists to work with non-unionists, although the working rule agreements distinctly provided that they should do so. About 1,000 men were involved. This action being a distinct breach of the agreements, the time had arrived when the employers intended firmly to insist upon the adoption of some method other than promises to compel the observance of the rules. In the absence of suggestions from the operatives, the employers' proposals were submitted as follows:—

1. The return to work of all men to jobs where strikes exist immediately after the holidays.
2. That a guarantee trust fund be formed by deposits by both sides to be available for the purpose of paying penalties for strikes or lock-outs in violation of the working rules.
3. That a statement in writing be sent by trade societies to the L.M.B.A. deprecating strikes without the matters in dispute being brought before the Conciliation Board, and that trade societies undertake to penalise their individual members in case of the non-observance of the rules.
4. That an undertaking be given that no attempt be made on any of the jobs of members of the L.M.B.A. to carry out card inspections.
5. That a reply be in the hands of the L.M.B.A. on or before January 5th, 1914, stating whether or not executive committees accept the principle involved in the foregoing proposals.

TRADE AND CRAFT.

Kartret Fuses.

A new type of porcelain clip or handle fuse has been placed on the market by the Kartret Engineering Co., Ltd., of Queen Anne's Chambers, Westminster, involving some novel and interesting points. The fuse wire is threaded through a hole in the handle, and connection to the terminals at each end is made by pressing in spring slides. This action turns the wire over at right angles to the hole and presses it tightly against the terminal block. If desired, an indicating device can be supplied in order to show that the fuse has blown. This arrangement consists of a plunger controlled by a spring, having a hole in the centre. After the plunger has been pressed against the pressure spring, the wire is passed through this hole, which is then in line with the hole through the fuse handle.

When the fuse blows this causes the plunger to be released and to be pushed outwards by the spring, thereby not only preventing an arc forming in the hole inside the fuse handle, but serving as an indicator by projecting beyond the surface of the handle. The base has spring clips, contacts, and cable terminals. When fitted up in an iron box a series of these fuses forms a neat and practical fuseboard.

Waterproofing Floors.

The clerk of works to the Earl Hopetoun is using Pudlo for the floor of the greenhouse cellars at Hopetoun, Queensferry. The architect for the Alexandra Hospital (open-air ward), Brighton, has specified Pudlo to be used with the cement to prevent porosity.

A Ventilating Contract.

The Court House, Chesterfield, is to be ventilated by means of Shorland's patent exhaust roof ventilators, supplied by Messrs. E. H. Shorland and Brother, Ltd., of Failsworth, Manchester.

EXPERIMENTS NEAR ST. PAUL.

On the site on which stood the General Post Office, at the junction Cheapside and Aldersgate Street, have been carried on for some months past a series of important experiments in underground cementing, with a view to applying the same method, if it proved successful, to the foundations of St. Paul's Cathedral. The first stage of the experiments (the actual cementing) is just completed, and all that remains is to examine the work and ascertain what has happened.

The site was suggested by Canon Anderson, the Treasurer to the Chapter. The conditions are practically the same as those found in St. Paul's Churchyard, except that a greater depth of water and the presence of moving currents have rendered the work more difficult than it might otherwise have been. The process is to sink four or five steel tubes down to London clay, which underlies the bed sand and gravel, and then by very powerful pressure to force cement through holes with which the tubes are pierced, the surrounding sand, with which it shall combine to form solid concrete. Much delay has been caused by the lack of a machine powerful enough to produce the air-pressure required; but since this has been obtained the work has gone forward rapidly. Sir Francis Fox, who has been in charge of the experiments, is satisfied that the results are very hopeful as to the method which can be applied to the soil on which the Cathedral stands, a very difficult problem will have been solved.

NEW BRIDGE FOR WARRINGTON.

Messrs. Joseph Crosfield and Sons propose to construct a transporter bridge across the Mersey at Warrington. According to the plans, the bridge is to have a total length of 325 ft. with a width of 30 ft. The length between abutments will be 200 ft., and the height of the floor above the river at high-water level, with 2 ft. tide, will be 75 ft. The abutments will be of brickwork and concrete and the tire superstructure of lattice-work steel. The abutment on the Warrington side will be a length of 62 ft. 6 in. and a breadth at the base, of 32 ft. This abutment will project into the tidal water of the river to an extent of 24 ft., measured from the line of high-water on the Lancashire side of the river and its total height, base to top, will be 58 ft. On the Walton side of the river the abutment will have a height of 48 ft., the base measuring 6 ft. 6 in. by 32 ft.; the projection into the water will be 21 ft., measured from the line of high-water on the Cheshire side. The height of the floor above the cap of the abutments will be 57 ft. on each side of the river.

THE ARCHITECTS' & BUILDERS' JOURNAL.

Edition de Luxe.

December 30, 1913.

[Special Section.]

PRESIDENTS OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A Series of Twenty-four Portraits.



R.I.B.A. PRESIDENTS.

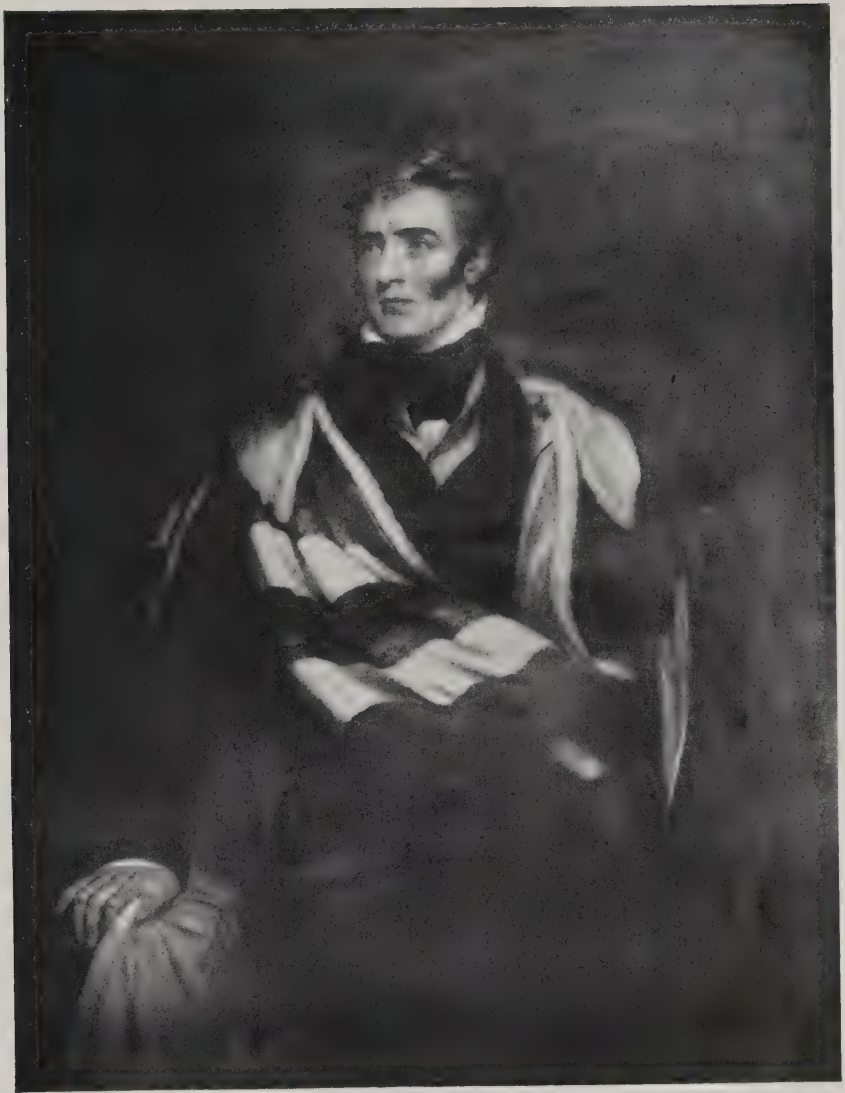
BY courtesy of the Council of the Royal Institute of British Architects, we are able to reproduce on the following pages a series of portraits of Presidents of the Institute, commencing with Earl de Grey, the first president (1835), and terminating with Mr. Reginald Blomfield, the present distinguished occupant of the presidential chair.

The series is primarily of interest as a personal record of men who have attained the highest honours in their profession, but many of the portraits have an additional value as fine examples of painting by eminent artists. Regarded from the latter point of view, those of Alfred Waterhouse (by Orchardson), Penrose (by Sargent), Aitchison (by Alma-Tadema), and John Belcher (by Dicksee) are especially worthy of notice. Still another source of attraction is found in the series by reason of the striking physiognomy of several of the Presidents, such as Gilbert Scott (page 601), Cockerell (page 591), Waterhouse (page 615) and Barry (page 603).

Thus, the portraits are of interest from many points of view, and as to each a short biographical note is appended the reader is able to gain simultaneously both an impression of the facial character of the Institute's Presidents and a succinct account of their achievements.

The following is a list of the Presidents, with the names of the artists who executed the portraits:—

PRESIDENT.	YEARS OF OFFICE.	ARTIST.
Earl de Grey	1835—1859 ...	J. Wood.
Charles Robert Cockerell	1860 ...	W. Boxall, R.A.
Sir William Tite	1861—1863 and 1867—1870 }	J. P. Knight, R.A.
Thomas L. Donaldson	1863—1865 ...	Charles Martin.
A. J. Beresford Hope	1865—1867 ...	Do.
Thomas Henry Wyatt	1870—1873 ...	George Richmond, R.A.
Sir George Gilbert Scott	1873—1876 ...	Do.
Sir Charles Barry	1876—1879 ...	Lowes Dickinson.
John Whichcord	1879—1881 ...	Sir Lawrence Alma-Tadema, R.A.
George Edmund Street	1881 ...	H. H. Armstead, R.A.
Sir Horace Jones	1882—1884 ...	Frank Holl, R.A.
Ewan Christian	1884—1886 ...	W. W. Ouless, R.A.
Edward P'Anson	1886—1887 ...	—
Alfred Waterhouse	1888—1891 ...	Sir William Orchardson, R.A.
J. Macvicar Anderson	1891—1894 ...	Charles Furse, A.R.A.
Francis C. Penrose	1894—1896 ...	John S. Sargent, R.A.
George Aitchison	1896—1899 ...	Sir Lawrence Alma-Tadema, R.A.
Sir William Emerson	1899—1902 ...	J. J. Shannon, R.A.
Sir Aston Webb	1902—1904 ...	Solomon J. Solomon, R.A.
John Belcher	1904—1906 ...	Frank Dicksee, R.A.
Thomas E. Colcutt	1906—1908 ...	A. S. Cope, A.R.A.
Sir Ernest George	1908—1910 ...	Sir Hubert von Herkomer, R.A.
Leonard Stokes	1910—1912 ...	William Orpen, A.R.A.
Reginald Blomfield	1912—1914 ...	R. B. M. Paxton.



From a painting by J. Wood after Wm. Robinson.

THOMAS PHILIP, EARL DE GREY.
President, 1835-1859.

Earl de Grey, the first President of the Institute, was not an architect but a statesman who patronised the arts and sciences. He held important offices under the Crown, including the Lord Lieutenancy of Ireland. He was made a Fellow of the Royal Society in 1841, a Fellow of the Society of Antiquaries, and served as one of the New Palace Commissioners from 1848. In his case the ordinary rule of the Institute, under which the President holds office for two years, was suspended, and Earl de Grey presided over the meetings for no less a period than twenty-four years, from the foundation of the Institute in 1835 until his death in 1859. It was largely owing to his personal influence with Queen Victoria that the Royal Gold Medal was established.



From a painting by W. Boxall, R.A.

CHARLES ROBERT COCKERELL, R.A.

President, 1860.

Professor Cockerell, the son of Samuel Pepys Cockerell, was born in London in 1788, died in London in 1863, and was buried in St. Paul's Cathedral, of which building he had charge, in his capacity as Surveyor, for the greater part of his professional life. After receiving an education at Westminster School, he travelled in Greece, Asia Minor, and Sicily, where he made important discoveries, including the Ægina marbles (now in the British Museum), and subsequently produced some wonderful restorations of Athenian and Roman architecture. He designed the beautiful little Hanover Chapel in Regent Street (now demolished); the fragment of the National Monument of Scotland which still stands on Calton Hill, Edinburgh; the new Drawing Office at the Bank of England (to which building he was architect, in succession to Sir John Soane); several London banks and insurance offices, including the Sun Office in Threadneedle Street; the Fitzwilliam Museum, Cambridge (a completion of Basevi's design); the Taylorian Institution at Oxford (the erection of which in the midst of the Gothic Revival prevented its receiving the admiration it deserved); and carried to completion the interior of St. George's Hall, Liverpool, after the untimely death of Elmes; at Liverpool, too, he erected the Bank of England and the offices of the Liverpool and London and Globe Insurance Company. As President of the Institute in 1860 he was the first to have the honour of receiving the Gold Medal. He was a most scholarly architect, a magnificent draughtsman, and a distinguished author.

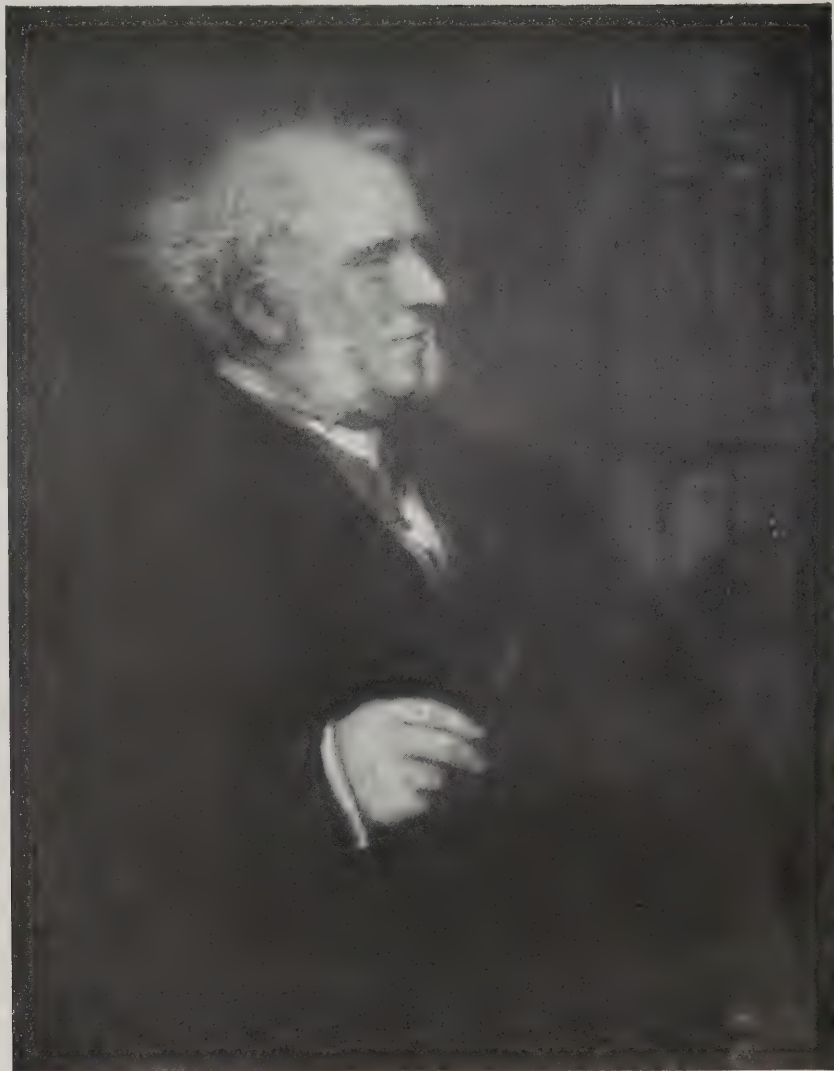


From a painting by J. P. Knight, R.A.

SIR WILLIAM TITE.

President 1861-1863 and 1867-1870.

Sir William Tite was twice President of the Institute, from 1861 to 1863, and from 1867 to 1870. He was born in London in 1798 and died a rich man at Torquay in 1873, his personal property having been sworn at £400,000. His chief architectural work is the Royal Exchange. He competed for this building in the first open competition in 1840, but was not placed; when, however, the three premiated designs were declared unsuitable, and the open competition system was abandoned, Tite was one of the five architects invited to submit designs. Barry, Gwilt, and Smirke having declined to compete, only Cockerell and Tite were left, and Tite's design was chosen. He was largely employed in the valuation, purchase, and sale of land for railways, and designed many of the important early railway stations, including the termini of the London and South-Western Railway at Vauxhall (Nine Elms) and Southampton, and most of the stations on the Caledonian and Scottish Central railways—Edinburgh among them. He took great interest in civic affairs, and as a member of the Metropolitan Board of Works was largely concerned with the construction of the Thames Embankment. He was also well known as an antiquary, and possessed a very valuable library. It was Tite who founded the prize of the R.I.B.A. which bears his name, for designs of a Renaissance character—a counterblast to the Pugin Studentship, which had been established two years earlier, in favour of Gothic architecture.

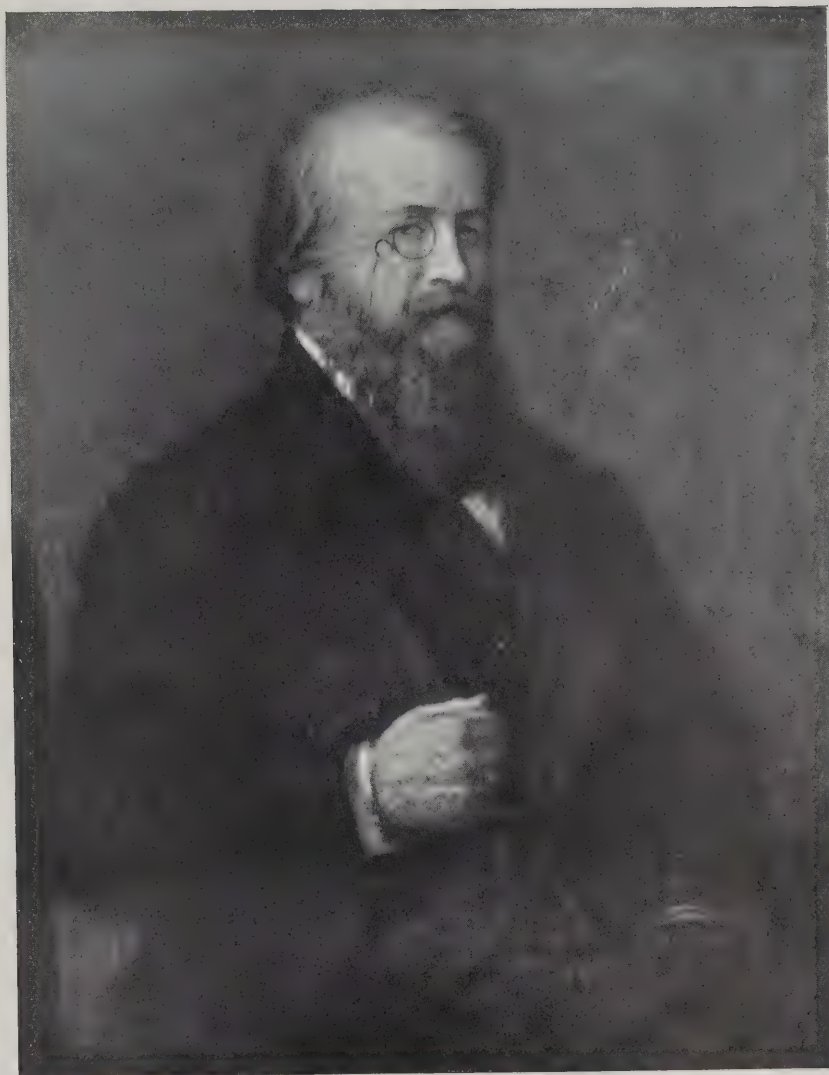


From a painting by Charles Martin.

THOMAS L. DONALDSON.

President 1863-1865.

Professor Donaldson is better known for his researches into the ancient architecture of Greece and Italy and for the lectures he delivered in his capacity of Emeritus Professor of Architecture at University College, London, than for his executed architectural works. Among the latter, however, may be mentioned the library and laboratory at University College; the town house of Thomas Hope in Piccadilly (now the Junior Athenaeum Club); a large house at Lambourn, in Berkshire; All Saints' Church, Gordon Square, London; Trinity Church, South Kensington; and the Scotch Church at Woolwich. He took a prominent part in the competition for the Albert Memorial, and, in conjunction with E. A. Gruning, carried out the German Hospital at Dalston. He devoted considerable attention to the sanitary questions of his day. He was also actively concerned in the founding of the Institute. Donaldson received the Gold Medal in 1851 and was President of the Institute from 1863 to 1865.

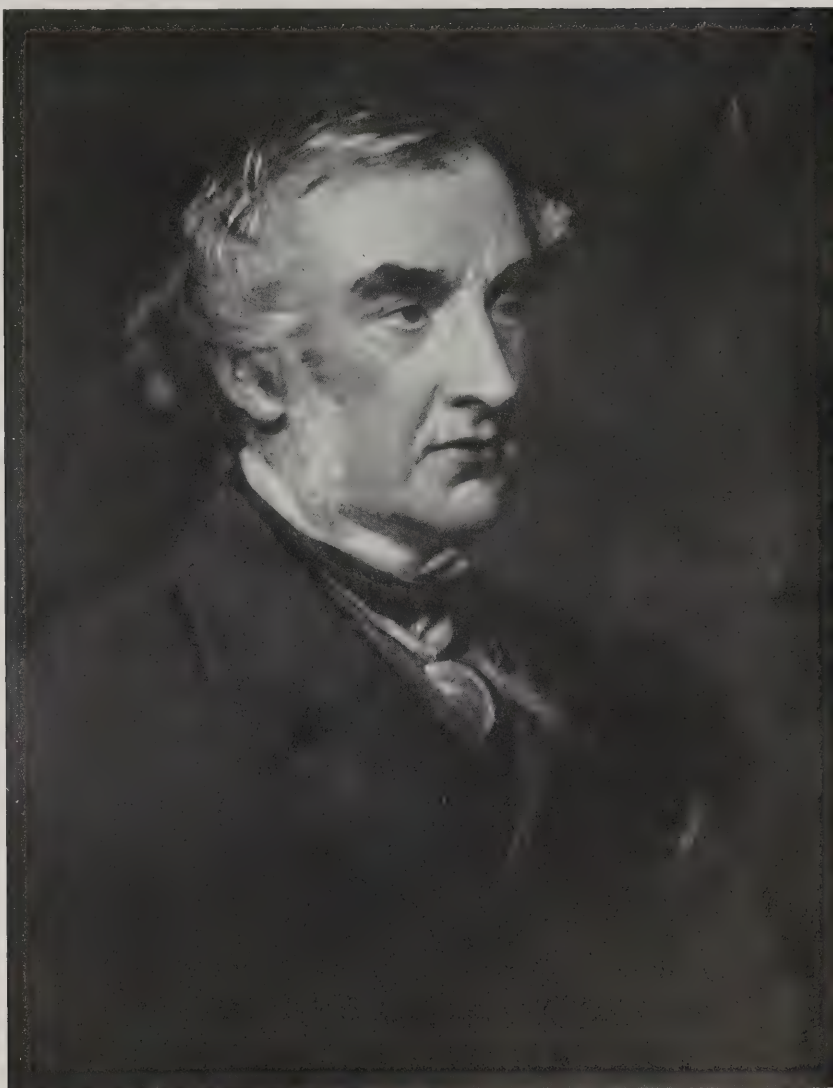


From a painting by C. Martin.

A. J. BERESFORD HOPE.

President 1865-1867.

Beresford Hope, youngest son of the celebrated Thomas Hope, was one of the two Presidents which the Institute have had who was not an architect—the other being the first President, Earl de Grey. He was a keen controversialist and, possessed of great wealth, devoted a great portion of his time and income to the interests of the Church of England. All Saints' Church, Margaret Street (by Butterfield), was built at his own expense, and he also bore the cost of rebuilding and endowing the parish church of Sheen, in Staffordshire, and of acquiring the ancient buildings of St. Augustine's Abbey, Canterbury, as a college for missionary clergy. Archæology deeply interested him, as well as artistic and architectural subjects. He was a firm advocate of Gothic principles in art, and frequently lectured on artistic subjects. He was President of the Institute from 1865 to 1867, became a trustee of the British Museum in 1879, was President of the Ecclesiological Society and of the Architectural Museum, a trustee of the National Portrait Gallery, and a Fellow of numerous learned societies. He died in 1887.

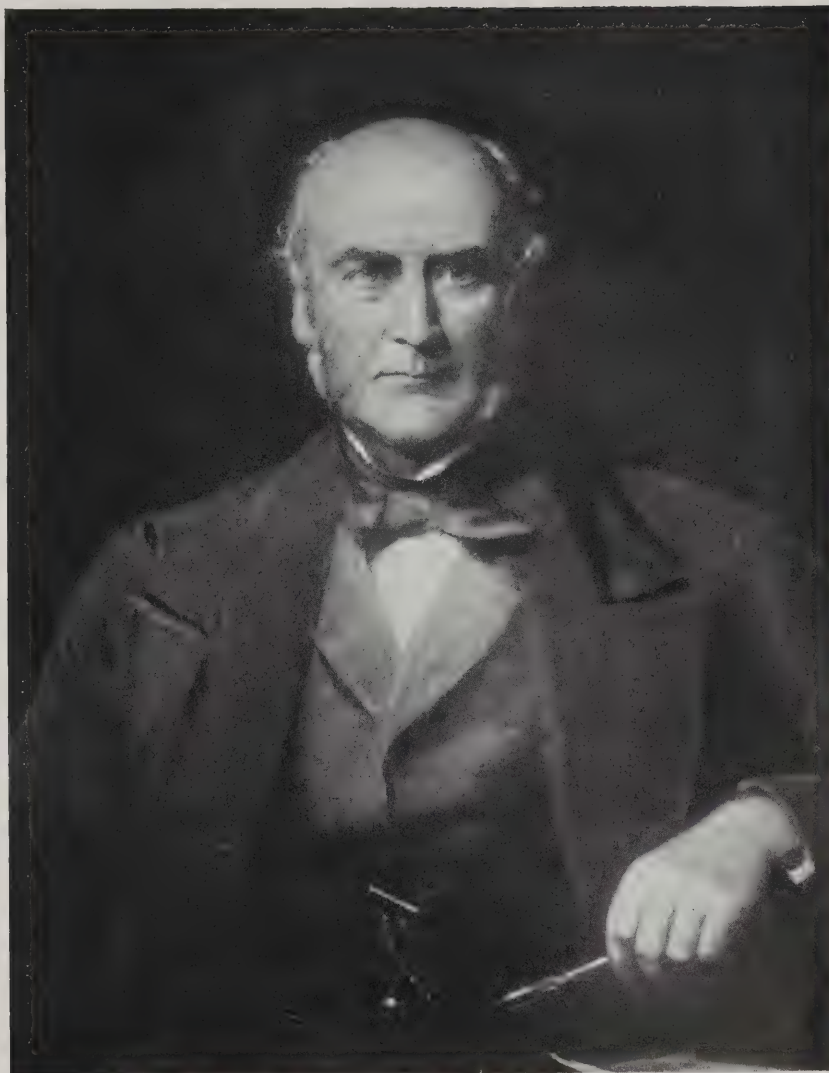


From a painting by George Richmond, R.A

THOMAS HENRY WYATT.

President 1870-1873.

Thomas Henry Wyatt carried out a very large number of buildings during the prosperous years of the nineteenth century, and, though not possessing much originality, was a very capable architect. He received his training with Philip Hardwick, after leaving whom in 1832 he commenced on his own account. Six years later, so successful was his practice, he took David Brandon into partnership, and with him, during a connection of thirteen years, designed the Assize Courts at Cambridge, Brecon, and Usk, the Wilts and Bucks lunatic asylums, and many private residences. At the termination of the partnership he worked independently until about 1860, when he had the assistance of his son. Among his most important works are the Exchange at Liverpool, the Knightsbridge Barracks, the Adelphi Theatre, London (since reconstructed), the church at Wilton (one of the earliest modern buildings in this country in which mosaic decorations were attempted), the Stockwell Fever Hospital, and a mansion in Park Lane for Sir Dudley Marjoribanks. As an acknowledged authority on hospital construction he was appointed honorary architect to the Middlesex Hospital and consulting architect to the Lunacy Commissioners. He also held the post of consulting architect to the Incorporated Church Building Society, in which capacity he was associated with the design or restoration of more than one hundred and fifty churches. He was President of the Institute from 1870 to 1873, in which latter year he received the Gold Medal.



From a painting by George Richmond, R.A.

SIR GEORGE GILBERT SCOTT, R.A.

President 1873-1876.

Few architects have had so busy a career as Sir George Gilbert Scott, and to few has fallen the task of undertaking so many works. At the commencement of his career, when in partnership with W. B. Moffatt, he was concerned largely with buildings of the workhouse class, but, later, ecclesiastical commissions came his way, and thereafter his work in connection with church buildings was enormous. One of his most noteworthy churches is St. Mary Abbots, Kensington. Restorations, especially, were confided to his care, in carrying out which his zeal for the Gothic Revival caused him to sweep away much old work and to replace it with his own—a practice which gave rise to great opposition to all architectural restoration, culminating in the formation of the Society for the Protection of Ancient Buildings. The Chapter of Ely, in 1847, gave him his first appointment as restoring architect to a cathedral, and subsequently he acted in a similar capacity at Hereford, Lichfield, Salisbury, Ripon, Chester, Worcester, Chichester, Gloucester, Rochester, Exeter, Canterbury, and Westminster. His secular work was on an equally extensive scale, the most notable undertakings being the Home and Foreign Offices in Whitehall (the outcome of a competition which caused him much bitterness), the hotel and station at St. Pancras, the Albert Memorial, and the buildings of Glasgow University. He was responsible for many alteration schemes and rebuildings at Oxford and Cambridge (including the chapel of Exeter College at the former and the chapel of St. John's College at the latter). In 1872 he received a knighthood in consideration of his works for the Royal Family.



From a painting by Lowes Dickinson.

SIR CHARLES BARRY.
President 1876-1879.

Barry, Cockerell, Gandy-Deering, and Blore were contemporaries who were celebrated for their drawings of architecture before they became practising architects. In the case of Barry, it was his talent as a delineator of scenery and buildings that led to his engagement with Mr. D. Baillie, whom he accompanied (at a salary of £200 per annum and his expenses) on a tour through Egypt and Palestine. During his foreign travels Barry devoted great attention to the Renaissance buildings of Italy, resulting in the inclination towards this phase of architecture which dominated his career up to the time of his life work, the Houses of Parliament, after which a curious blend with Gothic became apparent. His early works included several buildings of great distinction, among them being the Royal Institute of Fine Arts and the Athenæum at Manchester, and the Travellers' and Reform Clubs in London. In the last-named he conceived the idea of taking the cortile of an Italian palace and covering it in, a scheme which he adopted again, on a larger scale, at Bridgewater House. Among other buildings designed by him are the Treasury Office in Whitehall, Highclere House, Trentham Hall, Bylaugh, Norfolk, and Dornden, Kent; but his chief fame rests on the Houses of Parliament, a building masterly alike in plan and architectural form. Barry left two daughters and five sons, among the latter being E. M. Barry, the architect, and the present distinguished engineer, Sir John Wolfe Barry.

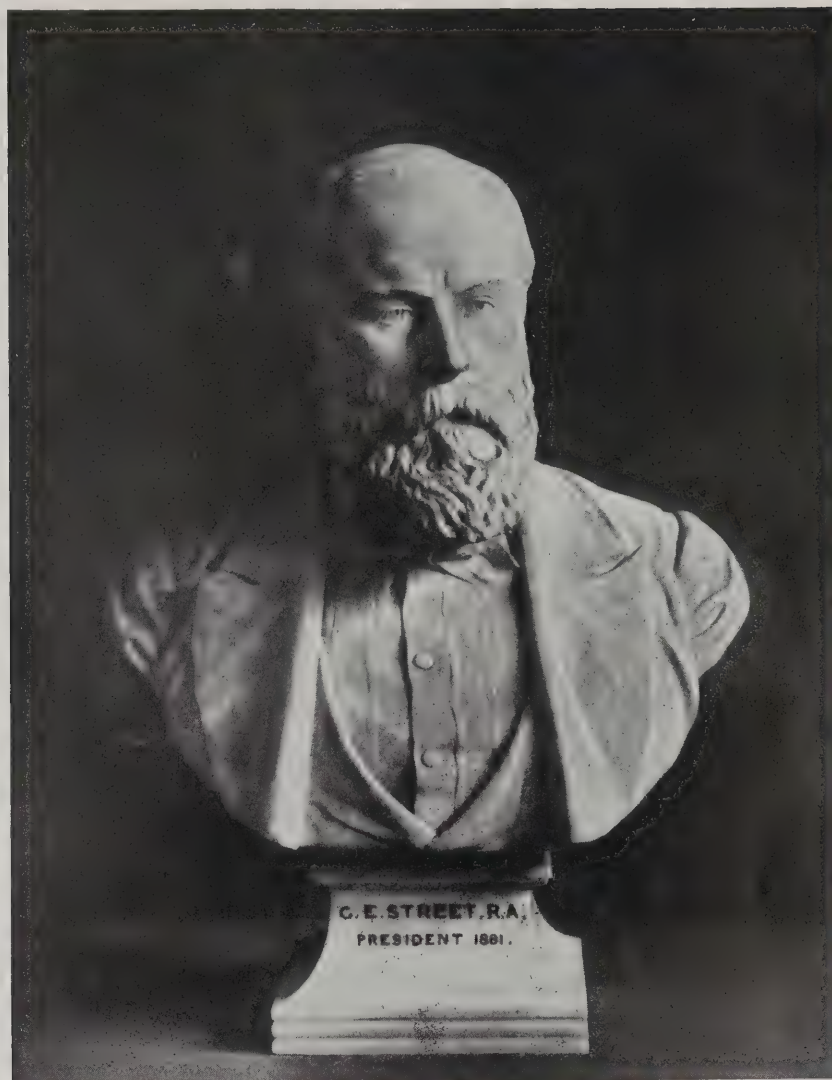


From a painting by Sir Lawrence Alma-Tadema, R.A.

JOHN WHICHCORD.

President 1879-1881.

The name of John Whichcord is not associated with any architectural work of distinction. During an extensive practice, however, he erected many large buildings of a commercial or semi-commercial nature, and he was largely instrumental in the establishment of the examination system of the Institute. His father was an architect at Maidstone, and with him John Whichcord received his early training. Later he went on a prolonged tour abroad, embracing Italy, Greece, Syria, Egypt, and Palestine, and on his return took a partnership with Arthur Ashpitel, whose name is well remembered by the establishment of the Ashpitel Prize of the Institute. During the partnership extensive additions to Lord Abergavenny's house, Birling, Kent, were carried out. His subsequent work consisted largely of office premises in the City of London, such as the National Safe Deposit in Queen Victoria Street and Brown, Janson and Co.'s bank in Abchurch Lane. Better known, however, is the St. Stephen's Club, at the corner of the Victoria Embankment, facing the Houses of Parliament—Whichcord's chief work. He also built the Grand Hotel at Brighton and the Clarence Hotel at Dover. He was often employed as arbitrator in Government matters, and was one of the surveyors to the Railway Department of the Board of Trade. He occupied the presidential chair of the Institute from 1879 to 1881.



From a bust by H. H. Armstead, R.A.

GEORGE EDMUND STREET.
President 1881.

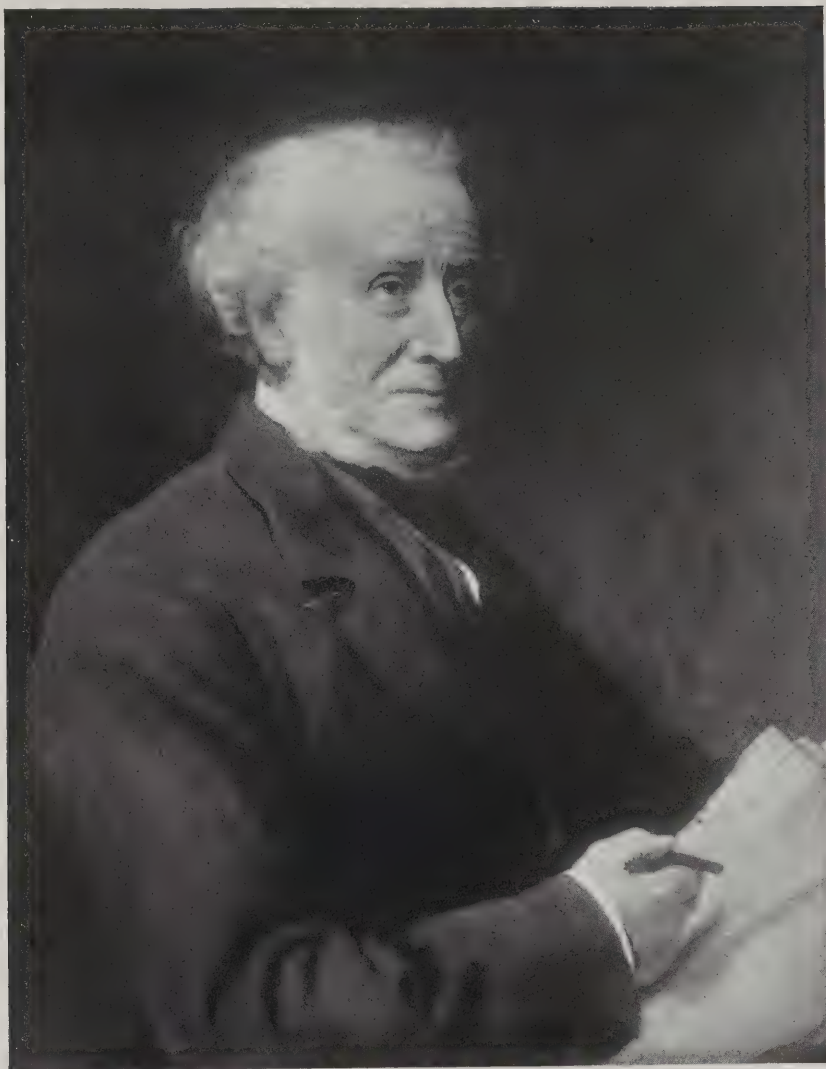
George Edmund Street was one of the protagonists of the Gothic Revival. He was a man with an astounding capacity for work, and had a rare gift for rapid, brilliant architectural draughtsmanship. His best known building is a secular one, the Law Courts, which he gained in competition in 1867, though he never lived to see it brought to completion. It was, however, his churches that brought him most pleasure. Street was an ardent supporter of the new spirit in English ecclesiastical architecture. His first energies in this direction were developed whilst he was an assistant to Scott and Moffatt, and he continued throughout his life to maintain the Gothic standard. His study of mediæval work on the Continent gave him a fund of knowledge, but he was no mere imitator or copyist, his own individuality finding ready expression both in general design and in detail. The broad nave with suppressed aisles was his special invention. Of his many churches those at Kingstone, Clifton (All Saints), Oxford (St. Philip and St. James's), Bournemouth (St. Peter's), Torquay (St. John's), Eastbourne (St. Saviour's), Westminster (St. James-the-Less), and Paddington (St. Mary Magdalene) may be cited as among the most important. He also designed the American churches at Paris and Rome, and those for the English communities at Vevey, Lausanne, Mürren, Rome, and Genoa. Street lived in personal contact with the pre-Raphaelite artists, and it is interesting to note that among his pupils were Philip Webb and William Morris. His appointment as Professor of Architecture at the Royal Academy and his election as President of the Institute both took place in 1881, the last year of his life.



From a painting by Frank Holl, R.A.

SIR HORACE JONES.
President 1882-1884.

Sir Horace Jones is best known for the buildings he carried out when occupying the post of architect to the City of London. Most important among these are the meat, poultry, fruit, and vegetable markets at Smithfield, and the architectural casing of the Tower Bridge, designed in conjunction with the engineer, Sir John Wolfe Barry. Another well-known if uninspiring work is the memorial surmounted by a griffin which marks the site of Temple Bar. He was also the architect of the Guildhall School of Music, Leadenhall Market, and Billingsgate Market, the two last-named being entire rebuildings. The British and Irish Magnetic Telegraph Company's office in Threadneedle Street was erected from his designs, as well as the Sovereign Assurance office in Piccadilly, Marshall and Snelgrove's premises in Oxford Street, the old Town Hall at Cardiff, the City Lunatic Asylum at Dartford, and the library, museum, and council chamber at the Guildhall. Sir Horace Jones was President of the Institute during 1882-84, and, as an enthusiastic Freemason, was Grand Superintendent of Works from the former year until his death in 1887.

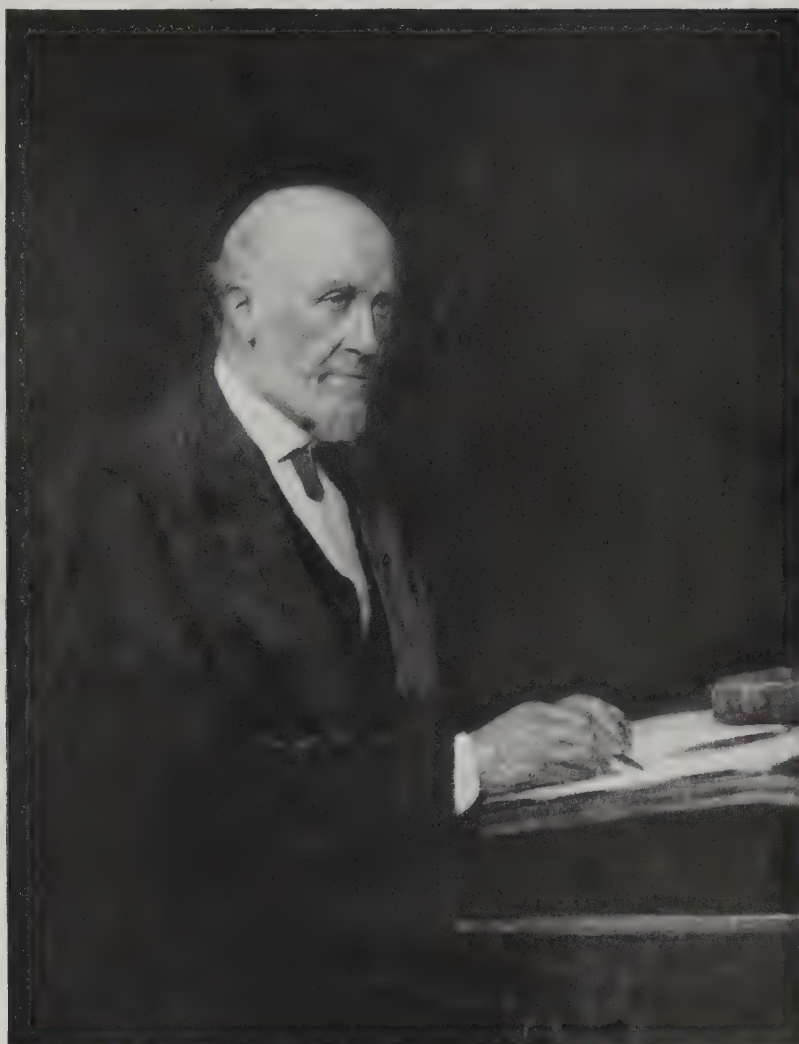


From a painting by W. W. Outess, R.A.

EWAN CHRISTIAN.

President 1884-1886.

Ewan Christian covered the greater part of the nineteenth century, having been born in 1814 and reached his eighty-first year. During that long life he carried out a great deal of work, chiefly ecclesiastical. Early in his career he was entrusted with the restoration of Carlisle Cathedral, and later he undertook a similar task at Southwell Minster. In 1850 he was appointed Consulting Architect to the Ecclesiastical Commissioners, a position which he held for forty-four years. In this capacity he designed a large number of churches in different parts of London, including All Hallows, Bromley-by-Bow; St. Benet's, Stepney; St. Paul's, Clerkenwell; and Holy Trinity, Dalston. He also designed St. Mark's, Leicester, which is one of his best churches. His domestic work included many large country houses—such as Burcote, Oxon—but he is perhaps most generally remembered as the architect of the National Portrait Gallery. Among other buildings by him in London are the premises of the Economic Life Assurance in New Bridge Street, Blackfriars, Cox's Bank at Charing Cross, and the group of houses for the minor canons of St. Paul's which is entered from Warwick Lane. He was President of the Institute from 1884 to 1886, and in the following year was the recipient of the Royal Gold Medal. A man of great vitality, he continued in harness to within a few days of his death, which took place in 1895.



EDWARD I'ANSON.
President 1885-1887.

Edward I'Anson had an extensive architectural practice in the City and designed many large buildings there. His first important commission was for the Royal Exchange Buildings, lately rebuilt. This brought him into notice. Subsequently he designed the premises of the British and Foreign Bible Society in Queen Victoria Street and the new museum and library at St. Bartholomew's Hospital—both buildings in the style of the Italian Renaissance, carried out with considerable ability. As surveyor to the Merchant Taylors' Company he designed their school at the Charterhouse, while among his other commissions may be mentioned Fetcham Park, Leatherhead, and the restorations of the Dutch Church in Austin Friars and of St. Mary Abchurch. In some of his architectural works, notably the new Corn Exchange in Mark Lane, he was assisted by his eldest son, the late E. B. I'Anson. He became President of the Institute in 1886, and in the same year was elected President of the Surveyors' Institution. He died in 1888.



From a painting by Sir William Orchardson, R.A.

ALFRED WATERHOUSE, R.A.

President 1888-1891.

So numerous were the activities of Alfred Waterhouse that it is only possible, in these few lines, to give the merest indication of them. He first came into public notice as the successful architect in the competition for the Manchester Assize Courts, which was closely followed by the erection of the large gaol at the rear. Then came the well-known design for the Natural History Museum, which must be considered as his most original achievement. Practically at the same time as the museum was being built, Waterhouse had two other important works on hand—Eaton Hall, for the Duke of Westminster, and the Manchester Town Hall. In the case of the latter his brilliant gifts as an architectural planner were displayed to a remarkable degree. It was, too, in connection with the internal decoration of this building that he was brought into intimate relationship with members of the Royal Academy, who elected him an Associate in 1878 and an Academician in 1885. Of his many other important buildings, the following brief list may be given: In London he erected the National Liberal Club, the Prudential building on Holborn, the City and Guilds' Institute in Exhibition Road, University College Hospital, and St. Paul's School, Hammersmith. He did a great deal of work at the Universities (including the new buildings of Gonville and Caius, Pembroke, and Jesus Colleges, Cambridge, and the new buildings at Balliol College, Oxford) and also designed the Victoria University buildings at Manchester, Liverpool, and Leeds. The Hotel Metropole at Brighton was one of his many other buildings. He did comparatively little ecclesiastical work, St. Elizabeth's, Reddish, being his principal church. He was awarded the Royal Gold Medal in 1878, and was President of the Institute from 1888 to 1891.



From a painting by Charles Furse, A.R.A.

J. MACVICAR ANDERSON.

President 1891-1894.

Mr. Macvicar Anderson, in his long association with the Institute—he was elected an Associate so far back as 1864—has taken a substantial share in a great many developments, though, throughout his career, the modesty of his nature has precluded his receiving the public recognition which otherwise might have been accorded to him. As a practising architect he has also much to his credit. Among his domestic work may be mentioned Althorp, Hants; Blankney Hall and Brampton Hall, Lincs.; Cheswardine Hall, Shropshire; Iden Manor and Wildernesse, Kent; and Powerscourt, Ireland. His civic work includes a number of important buildings for banking and insurance corporations, the chief of which are Coutts's Bank in the Strand, the British Linen Company's Bank in Threadneedle Street, the Liverpool and London and Globe building at the corner of Cornhill and Lombard Street, and the new premises of the Commercial Union Assurance Company on Cornhill. He was also the architect for the alterations and additions which were carried out at Brooks's Club, St. James's Street, some years ago. The Institute portrait, it will be noted, is by Charles Furse, that young painter who died at the commencement of a career which offered such brilliant prospects.



From a painting by John S. Sargent, R.A.

FRANCIS CRANMER PENROSE.

President 1894-1896.

F. C. Penrose is represented more by his architectural treatises than by his buildings. He was a man of an extraordinary scientific and analytical turn of mind, and he applied his peculiar gifts to the study of Greek buildings, more particularly as the outcome of some theories advanced by Pennethorne, which the Society of Dilettanti requested him to test by careful measurements. Thus was produced his greatest work, "The Principles of Athenian Architecture," in which he pointed out those subtle variations in the lines of the Greek temples which had previously never been thought of. Many other treatises were compiled by him, including one on astronomy (of which he was a great student) that led him into researches as to the orientation of temples; one of his last interests had relation to this, he having carried out, in collaboration with Sir Norman Lockyer, a most elaborate investigation with the object of determining the date of Stonehenge from its orientation. Of his architectural works, the principal are the Choir School at the back of St. Paul's Cathedral and the British School at Athens. New buildings at St. John's College, Cambridge, and the infirmary wing at Rugby School were also designed by him. For many years he was surveyor to the fabric of St. Paul's. He was presented with the Royal Gold Medal in 1883, was elected a Fellow of the Royal Society in 1894, and occupied the presidential chair of the Institute from 1894 to 1896.

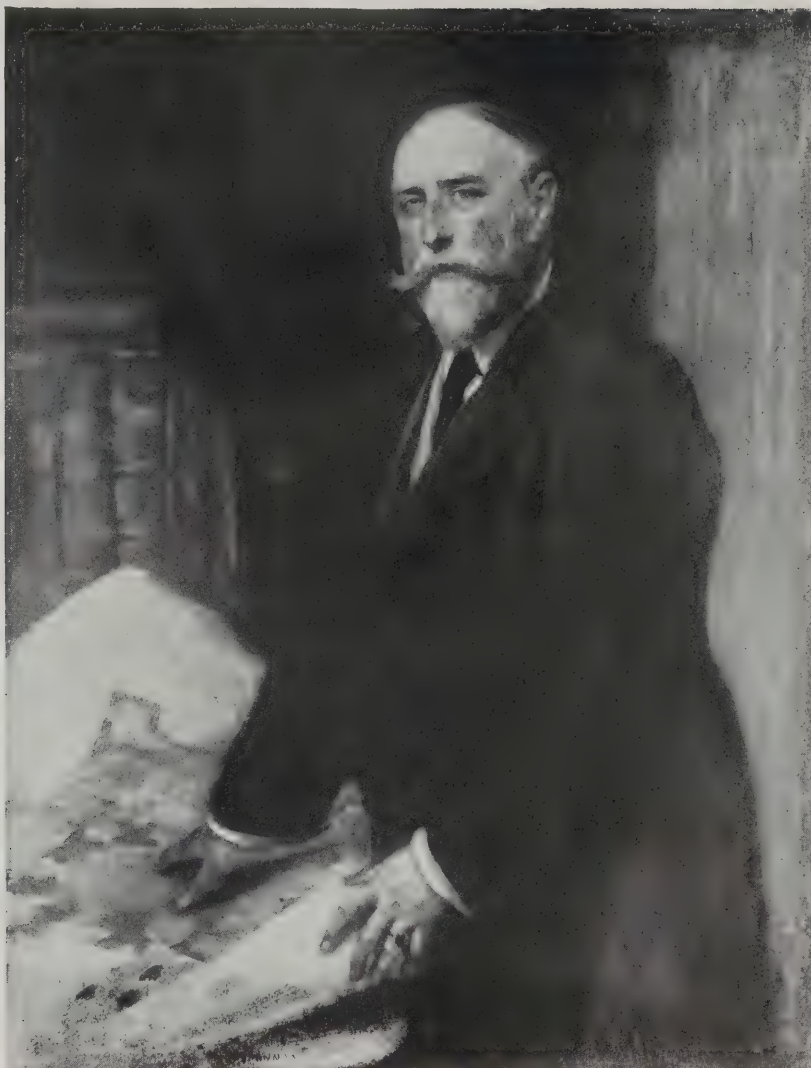


From a painting by Sir Lawrence Alma-Tadema, R.A.

GEORGE AITCHISON, R.A.

President 1896-1899.

No more strange development of a career could be imagined than that of George Aitchison, for, commencing with purely structural works in connection with St. Katherine's Docks, as assistant to his father (who was architect to the company), and continuing with massive wharves and warehouses, he ultimately found his interests centred on the design of interior decoration for large town and country houses. Meeting Lord Leighton while on a tour in Italy, he thereafter became closely associated with him, and designed the artist's house in Kensington, with its well-known Arab hall. Other works of similar character were the alteration and decoration of the hall and staircase at 44, Belgrave Square and the design of the new Board Room of the Thames Conservancy, to both of which Leighton contributed. This led to his being employed for much decorative work, in particular for Princess Louise at Kensington Palace, the Duke of Montrose, and Lord Leconfield. In 1877-78 he rebuilt Founders' Hall, in 1886 the Royal Exchange Assurance offices in Pall Mall were erected from his designs, and in 1892 he decorated in colour the Livery Hall of the Goldsmiths' Company. He also designed the decorations for the British Art Section at the Paris Exhibition of 1878. To his architectural work he added many literary contributions, the chief of which were the lectures he delivered as Professor of Architecture at the Royal Academy. The Royal Gold Medal was awarded to him in 1898.

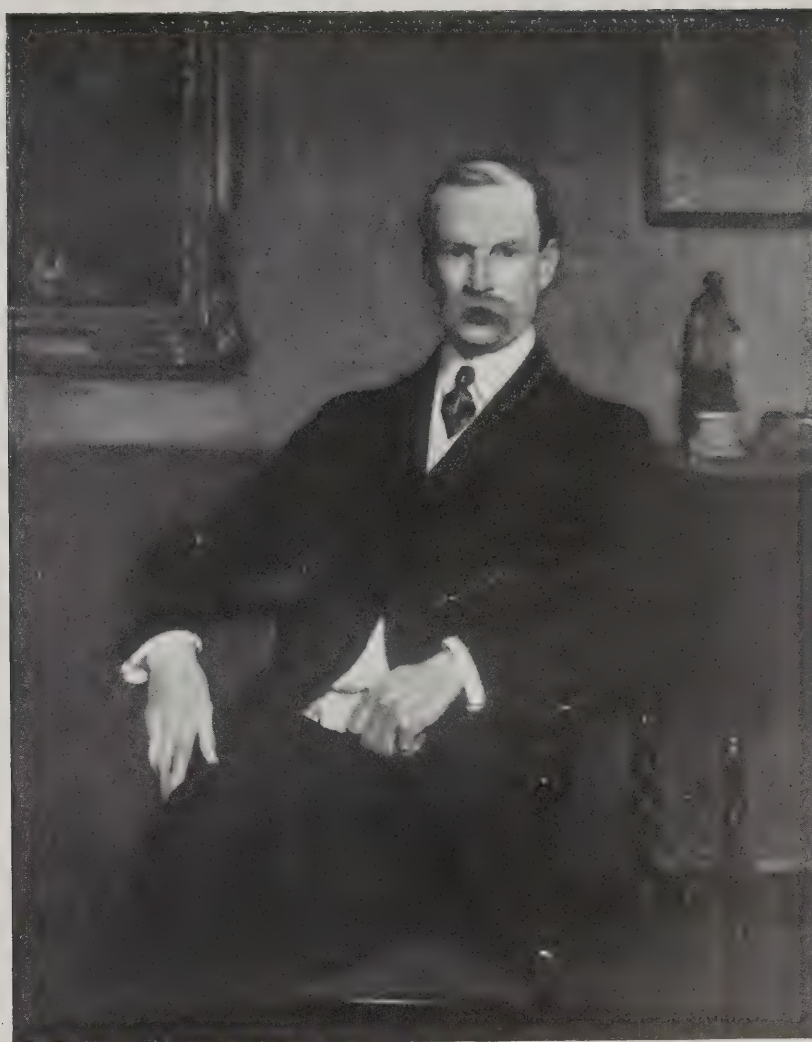


From a painting by J. J. Shannon, R.A.

SIR WILLIAM EMERSON.

President 1899-1902.

Sir William Emerson received his architectural training in the office of William Burges. The designing of the Bombay School of Art fell to Burges, and when the drawings were completed William Emerson, then twenty-one years of age, was entrusted with the duty of conveying them to Sir Bartle Frere, Governor of Bombay. Seeing great opportunities in India, he decided to remain there and was fortunate in commencing work at a time when a considerable amount of money was being spent on public buildings. Thus he received the commission to design the Bombay markets, in the centre of which is a fountain decorated with a series of sculptured panels by Rudyard Kipling's father. The Allahabad University, the Bhaunagar Hospital, and some buildings for the late Maharajah of Bhaunagar were also erected from his designs—all Oriental in character. Several English churches in Western India are from his hand, the most conspicuous being the Gothic cathedral of the diocese of Lucknow at Allahabad. On his return to England he designed Hamilton House (a large office building on the Embankment), a house in Queen's Gate, St. Mary's Church, Brighton, the new Royal Caledonian Asylum, and the Clarence Memorial Wing at St. Mary's Hospital. He also took part in the competition for Liverpool Cathedral, his design being placed first. At the present time he is carrying out the Victoria Memorial at Calcutta. He was president of the Institute during 1899-1902, and in the latter year received the honour of knighthood.

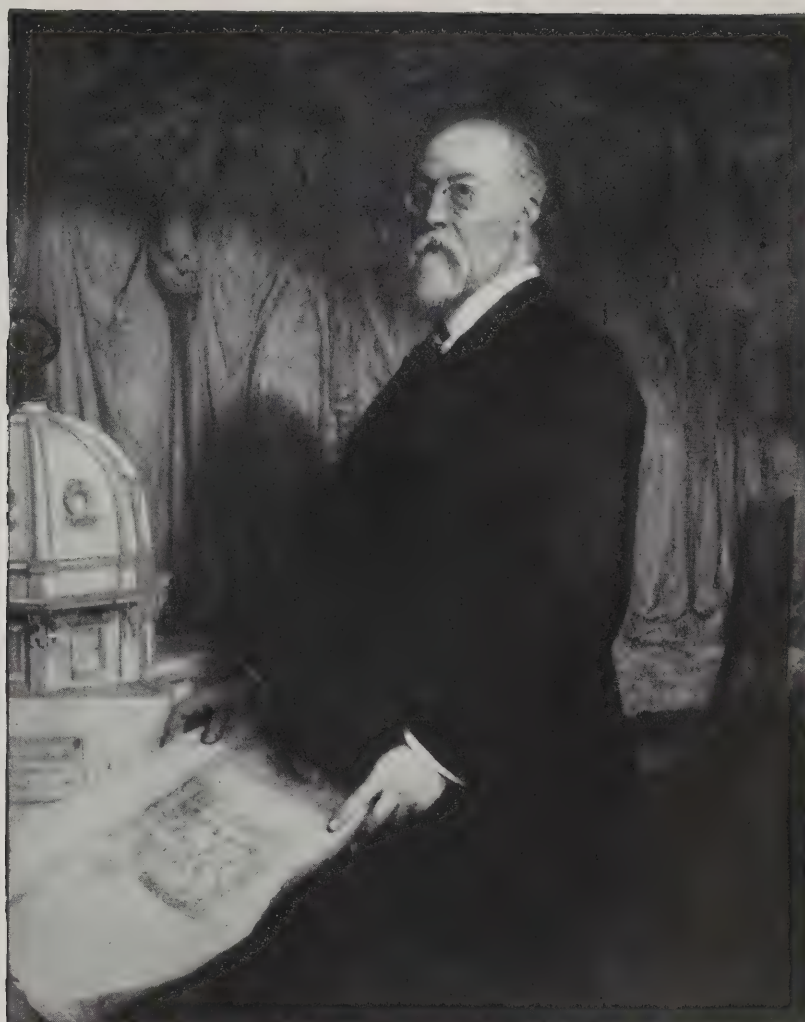


From a painting by Solomon J. Solomon, R.A.

SIR ASTON WEBB, C.B., R.A.

President 1901-1904.

No contemporary architect has carried out so many important buildings as Sir Aston Webb, still in the heyday of a successful career. His pupilage was served in the office of Messrs. Banks and Barry, after which he travelled through Europe, securing the Pugin Studentship on his return in 1873. His first good fortune was his selection, in company with Mr. Ingress Bell, for the Victoria Courts at Birmingham, soon followed by the commission for the Police Offices adjoining. Then came a long series of other works, including the Metropolitan Assurance Offices in Moorgate Street, the United Service Institution in Whitehall, the new schools of Christ's Hospital at Horsham, and the new buildings of Birmingham University. Of still more importance are the buildings for the Government which Sir Aston Webb has carried out in more recent years. Chief among these are the completion of the Victoria and Albert Museum, South Kensington; the new front to Buckingham Palace and the architectural surroundings of the National Memorial to Queen Victoria; the Admiralty building at the end of the Mall, opening into Charing Cross; the Britannia Royal Naval College, Dartmouth; the Science Museum, South Kensington; and the Royal College of Science, Dublin. The new building for the Grand Trunk Railway of Canada in Cockspur Street is another of his works. Sir Aston Webb has also designed many large country houses, including "Yeaton-Pevercy," Shrewsbury, and in the early part of his career was entrusted with the restoration of St. Bartholomew-the-Great. He has been the recipient of many honours, including knighthood in 1904, C.B. in 1909, and C.V.O. in 1911. He was elected a Royal Academician in 1903.



From a painting by Frank Dicksee, R.A.

JOHN BELCHER, R.A.

President 1904-1906.

The late Mr. Belcher, who died so recently as November 8th last, was associated with a long series of important buildings, both civic and domestic. At the commencement of his career, Mr. Belcher worked with his father, his early buildings including Rylands' premises in Wood Street, Cheapside; Stowell Park, Gloucestershire; and the Curriers' Hall, London Wall. Subsequently, when in practice on his own account, and when Mr. Beresford Pite was with him, he designed the Institute of Chartered Accountants, a building rendered notable by the sculpture and the paintings that adorn it. Two other important works were Colchester Town Hall and the Guildhall at Cambridge, while Electra House, Finsbury Pavement, revealed his skill once again in dealing with a large City building. One of his most striking conceptions was the Ashton Memorial, a domed building 220 ft. high, on a site overlooking Lancaster. In the latter part of his career he was joined by Mr. J. J. Joass, during which partnership some very noteworthy buildings were carried out, including the new premises for the Royal Society of Medicine in Henrietta Street, the new offices for the Zoological Society in Regent's Park, the Whiteley building, Bayswater, offices for the Royal Insurance Company at the corner of Piccadilly and St. James's Street, new premises for Messrs. Mappin and Webb in Oxford Street and Cheapside, and Holy Trinity Church, Kingsway—the last a design of exceptional merit. The country houses he built are too numerous for enumeration here, but Cornbury Park, Oxon, "The Towers," Pangbourne, and "Bearroc," Berkshire, may be cited as typical examples. In conjunction with Mr. Mervyn Macartney he compiled a standard work on "Later Renaissance Architecture in England."

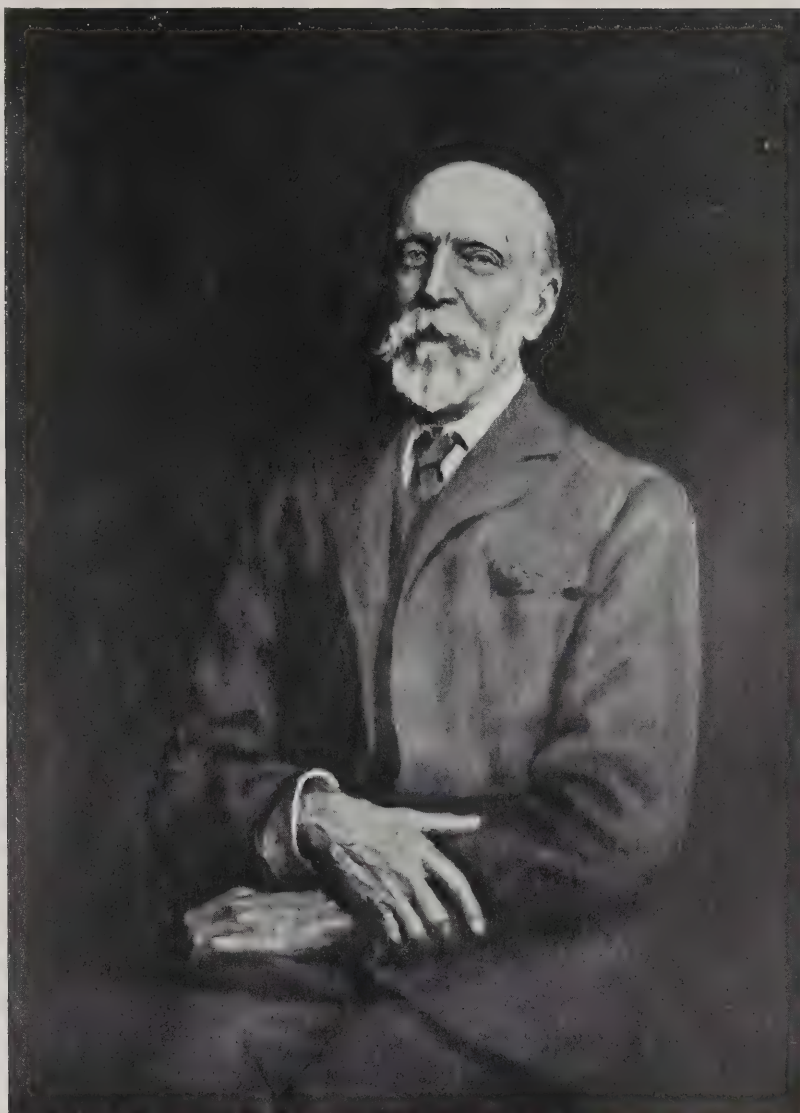


From a painting by A. S. Cope, A.R.A.

THOMAS EDWARD COLLCUTT.

President 1906-1908.

The chief buildings that stand to the credit of Mr. Collcutt are all in London. First among them is the Imperial Institute, with the high tower that is a landmark in South Kensington. The City Bank on Ludgate Hill and the Palace Theatre in Shaftesbury Avenue are two other buildings of his exhibiting that tendency towards certain phases of the French Renaissance which was so strong an attraction for Mr. Collcutt, while Lloyd's Registry in Fenchurch Street offers an example of a later type of design, in which the craftsman was introduced to collaborate with the architect in the enrichment of the building. The Savoy Hotel, carried out in conjunction with his present partner, Mr. Stanley Hamp, is a still later development, employing, in a new form, the material—terra-cotta—which has been so extensively favoured by Mr. Collcutt. The first building that brought him renown was the Wakefield Town Hall. Then followed some of the works which have been enumerated above. In addition, there was the new front in Leadenhall Street for the P. and O. Company, many of whose liners have also been decorated by Mr. Collcutt. He received the Grand Prix for Architecture at the Paris Exhibition, 1889, the Royal Gold Medal in 1902, and occupied the presidential chair of the Institute from 1906 to 1908.



From a painting by Sir Hubert von Herkomer, R.A.

SIR ERNEST GEORGE, A.R.A.

President 1908-1910.

Sir Ernest George has been very largely concerned with domestic work, a great number of houses, in town and country, having been erected from his designs. He commenced to practise at twenty-two with Mr. Thomas Vaughan, and continued for ten years until his partner's death; among the works of this time being Rousdon, in Devonshire, and Messrs. Sotheran's shop, No. 36, Piccadilly. He was then joined by Mr. Harold Peto, during which partnership many important works were carried out, and on the retirement of Mr. Peto he entered into partnership with Mr. Alfred B. Yeates, with whom he continues at the present time. Among his numerous country houses may be noted Buchan Hill, Sussex; Stoodleigh Court, Tiverton; Batsford Park, Gloucester; Dunley House, Dorking; Shiplake Court, Henley; Motcombe, Dorset; East Court, Ramsgate; and extensive alterations and additions at Welbeck Abbey. In the West End of London he designed the late Mr. Salting's house in Berkeley Square, Mr. De La Rue's in Cadogan Square, whole blocks of residential buildings in Collingham and Harrington Gardens, the Yellow House, Bayswater, and many houses in Chelsea. He was also the architect of the Albemarle Hotel, the Golder's Green Crematorium, and the new block of buildings at the rear of the Royal Exchange. Sir Ernest George is equally well known as a water-colour artist of much distinction. He received the Royal Gold Medal in 1896.



From a painting by William Orpen, A.R.A.

LEONARD STOKES.

President 1910-1912.

Mr. Leonard Stokes, who was born at Southport, came to London in 1871 and was articled to S. J. Nicholl in 1874. Later he spent some time with James Gandy, quantity surveyor, and subsequently worked under G. E. Street, Thomas Colcutt, and Bodley and Garner. His most noteworthy achievement is, perhaps, All Saints' Convent, Colney Chapel—a fine group of buildings near St. Albans, to the embellishment of which Mr. H. Wilson contributed some admirable sculpture. Minterne House, near Dorchester, for Lord Digby, is the best-known example of his domestic work, while the Roman Catholic Church at Sefton Park, Liverpool, is his best-known essay in ecclesiastical architecture. He is also the architect of many buildings for the National Telephone Company, among which are the exchanges at Southampton, Reading, and other provincial centres. The new schools at Downside Abbey, near Bath, testify to his ability in this branch of design, as also does the new quadrangle recently completed at Emmanuel College, Cambridge. Mr. Stokes was one of the architects in the limited competition, in 1900, for buildings on the line of the Holborn-Strand improvement scheme—a competition which, having been abandoned by the London County Council, proved fruitless. He was President of the Institute during 1910-1912.



From a pencil study by R. B. M. Paxton.

REGINALD BLOMFIELD, A.R.A.

President 1912-1914.

Mr. Reginald Blomfield, the present president of the Institute, enjoys the dual distinction of being an architect of eminence and an architectural critic and scholar of the first rank. After receiving an education at Haileybury and Exeter College, Oxford, and after travel abroad, he commenced to practise as an architect in 1884. His principal works are large country houses, among which are the following:—Apethorpe, Northants; Brocklesby Park and Caythorpe, Lincs; Wyphurst, Cranleigh; Elfordleigh, N.B.; Cowley Place, Uxbridge; Moundsmere, Hants; Wretham, Norfolk; and the Friars, Winchester. He has also designed or altered many town houses, including No. 6, Grosvenor Place and No. 20, St. James's Street. His collegiate work includes Lady Margaret Hall, Oxford; Whitby School, Chichester; and buildings at Haileybury College and Sherborne School. Mr. Blomfield was the architect of the United University Club, Suffolk Street and Pall Mall; alterations to the Oxford and Cambridge Club; a very noteworthy warehouse in Greycoat Place, Westminster, for the Army and Navy Stores; extensions to the Goldsmiths' Institute at New Cross; the London County and Westminster Bank, Chelsea; Lincoln Free Library; the South African War Memorial at Haileybury; and St. Paul's Cross. His literary work has been voluminous, the principal works being "The Formal Garden in England" (1892), "A History of Renaissance Architecture in England" (1897)—of which an abridged edition was published in 1900, "Studies in Architecture" (1906), "The Mistress Art" (1908), and "A History of French Architecture" (1911). He is Professor of Architecture at the Royal Academy, an Honorary Fellow of Exeter College, Oxford, and a Fellow of the Society of Antiquaries. He was elected an Associate of the Royal Academy in 1904, and was the recipient of the Royal Gold Medal 1913.



[*Special Section.*]

WORKMEN'S HOUSES
AND
LABOURERS' COTTAGES

A Series of Thirty-two Plates.



WORKMEN'S HOUSES AND LABOURERS' COTTAGES.

THE problem of providing houses for workmen and labourers in urban and rural districts having become so acute as to engage the attention not only of private owners and local authorities but also of the Government, we have thought that it would be of service to publish a series of plates illustrating some noteworthy examples of this class carried out by architects who have made a special study of the subject. Collections of designs for cottages have been given before, but we think it will be admitted that far greater value and interest attaches to the present series by reason of the fact that it shows executed work by means of drawings and photographs. The drawings have in every case been specially prepared for this issue, and, comprising elevations, sections, and plans, give a complete representation of each design, while the photographs show the actual appearance of the houses as built.

In recent years the continued depopulation of country districts and the migration into towns has created a problem which is very difficult to solve. There can be no doubt that in the country districts the dearth of cottages has been a large contributory factor to the serious exodus that has occurred, and the "back to the land" cry will never gain any ready response until the labourers can be sure of being decently housed at a moderate rental. From the landowner's point of view, of course, the principal difficulty consists in erecting cottages at such an outlay as will allow the rent to be fixed at a sum within the means of those who will occupy the cottages. What the ultimate end of the present difficulty will be, it is impossible to say with any degree of confidence; but the portents all indicate something in the nature of a State subsidy. Within the town areas a similar problem of adjusting outlay in building to return in rent is found to exist, though not to such an acute degree as in the country. And so far as the housing problem in towns is concerned, it is interesting to note how the large tenement building is being supplanted by houses of the cottage type, built either in pairs, rows or groups. Several such examples will be found illustrated on the following pages.

In compiling this series we have not sought to show only those cottages which have been carried out at a phenomenally cheap rate, as we realise that more often than not in such cases the low cost has been rendered possible only by cutting down the accommodation below the desirable minimum, by using materials of inferior quality and bald appearance, and by executing the building work in the most slipshod manner. Economy in cost is undeniably one of the cardinal necessities if houses are to let at a rent which workmen and labourers can afford to pay, but it must always be remembered that upkeep and permanence are factors of no less importance. This is especially the case with houses

built by local authorities, who have to arrange loans for the purpose. If the houses are substantial in character, a long-period loan—say sixty years—will be made possible, and the cost being thus spread over a greater period of years than would be granted with houses of less substantial character, the rent to the tenants can be correspondingly reduced. It will be found, we think, that in the examples now illustrated the problem has been studied from this dual point of view. The houses may be regarded as sound examples of building, finished in the best way that the available funds permitted, and designed also with an eye to their architectural appearance, whether in town or country. They comprise a large number of types, from the detached labourer's cottage to pairs and groups of cottages, and among them will be found also some flats for workmen. In respect of the plans alone they afford a very comprehensive insight into the requirements and the many ways in which the problem can be approached. The plates are quite self-explanatory and therefore do not call for detailed description and comment here. Hence we merely append a list of them.

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Six Cottages, Church Street, Bocking, Essex	Miss M. E. Tabor	657
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Weather-boarded Cottage, Merrow, Guildford	J. St. Loe Strachey	671
Concrete Cottages, Merthyr	F. Thackeray	671

PAIR OF COTTAGES AT SHEEPWASH. NEWTOWN :

TOTAL COST OF COTTAGES £200 EACH

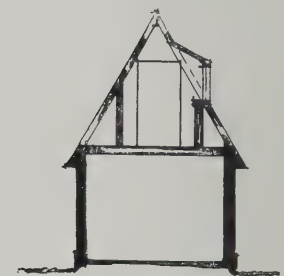
11" HOLLOW WALLS USED, WITH 9"×3" AND
9"×9" CREOSOTED DEAL FRAMING.
BRICKNOGGING 4½" THICK.

THE UPPER STOREY PROJECTS
14" OVER THE LOWER.

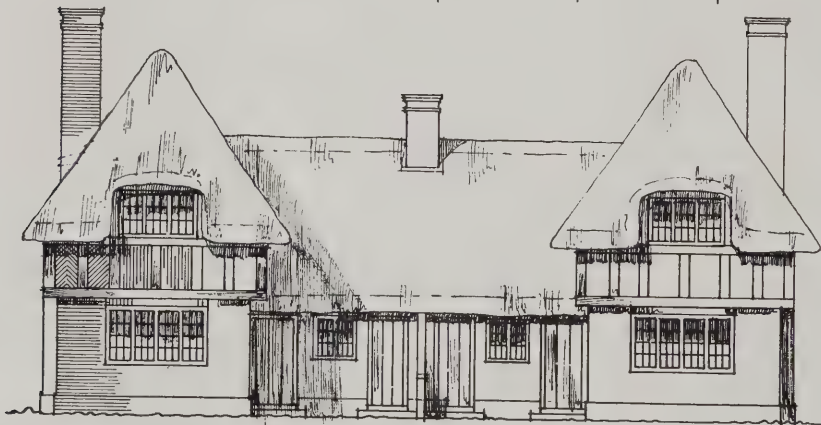
ROOF IS OF STRAW 14" THICK.



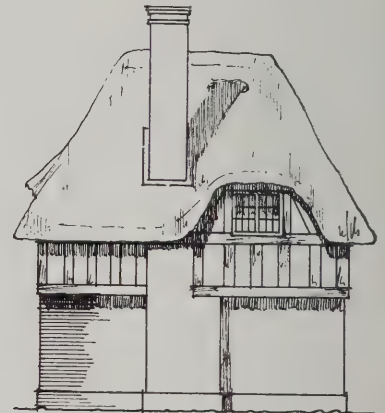
WEST. ELEVATION :



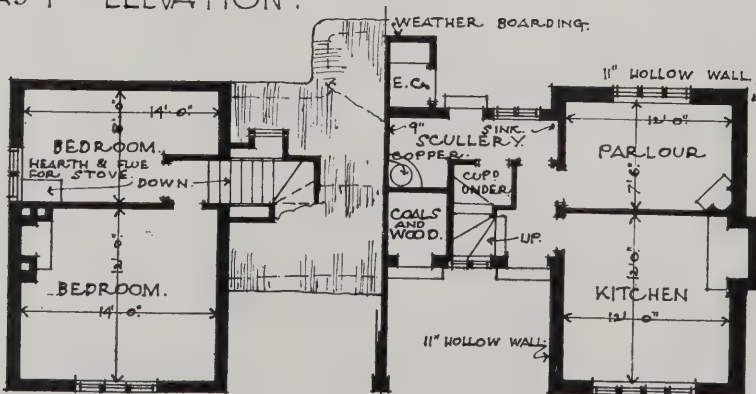
SECTION :



EAST ELEVATION :

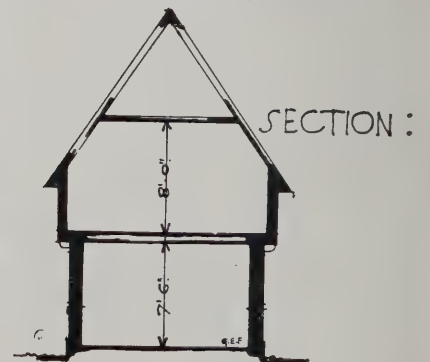


NORTH ELEVATION :



FIRST FLOOR
PLAN :

GROUND FLOOR
PLAN :



SECTION :

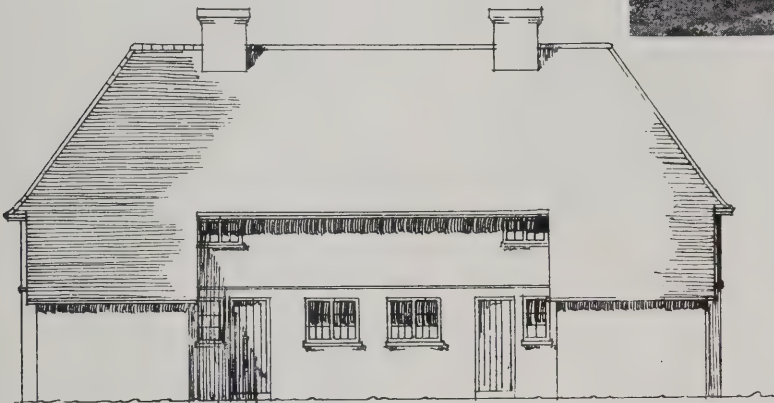
FRANCIS BACON
ARCHITECT :

PAIR OF
COTTAGES
AT DIBDEN.
SOUTHAMPTON :

COST ABOUT £150 PER COTTAGE



11" HOLLOW WALLS UP TO
UNDERSIDE OF JOISTS AFTER
WHICH IS PLASTER ON
EXPANDED METAL
ROOFING IS OF BRIDGWATER
TRIPLE TILES



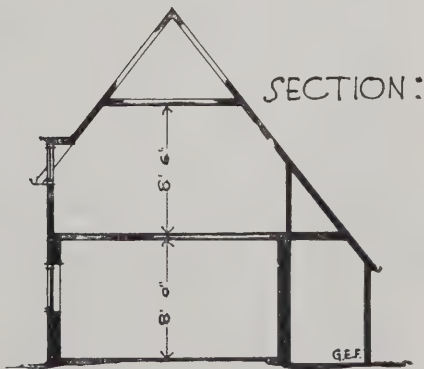
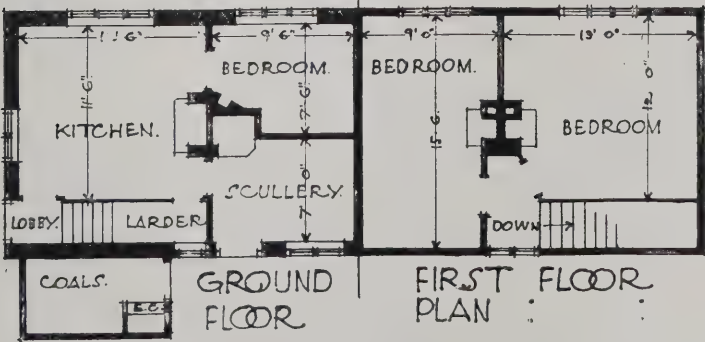
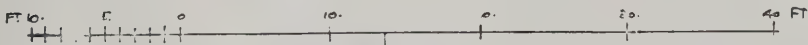
BACK ELEVATION :



FRONT ELEVATION :



END ELEVATION :



A.H. CLOUGH.
ARCHITECT :

GROUP OF FOURTEEN SMALL FLATS AT BYFLEET, SURREY.

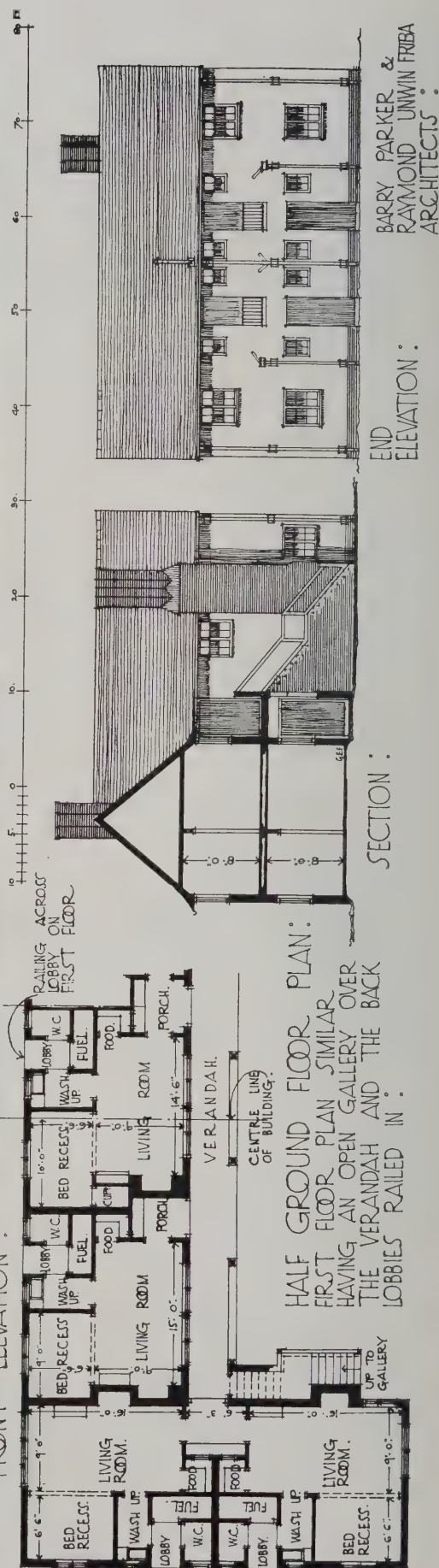
COST: £1510 (£108 PER FLAT)
MAIN WALLS OF BRICK, FINISHED
FACINGS OF MULTICOLOURED
SANDSTOCKS.
WINDOWS AND DOORS RED DEAL
PAINTED.
BALCONY FRAMING AND ALL THE OTHER
OUTSIDE WOODWORK OF OAK



BACK
ELEVATION:

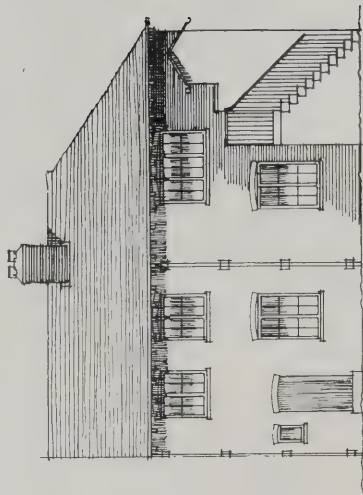
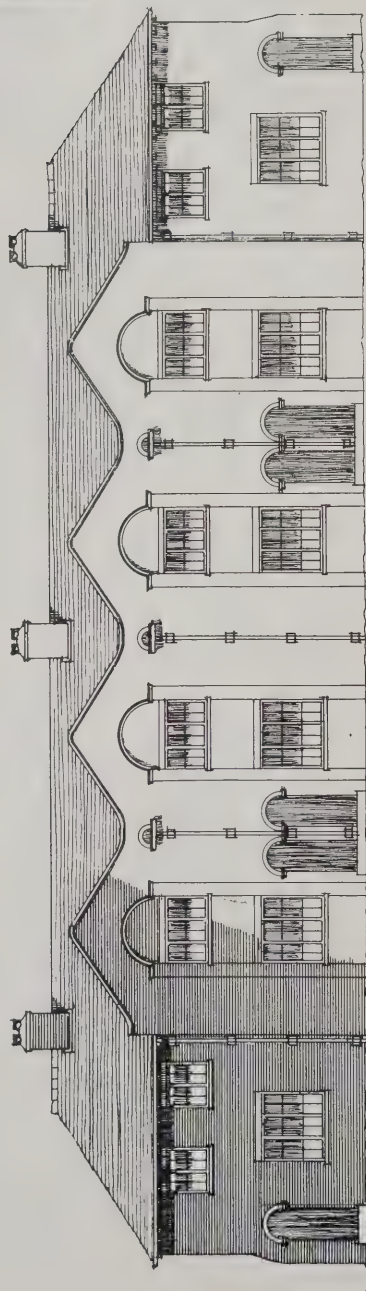
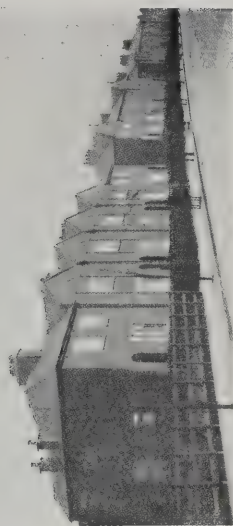


FRONT
ELEVATION:

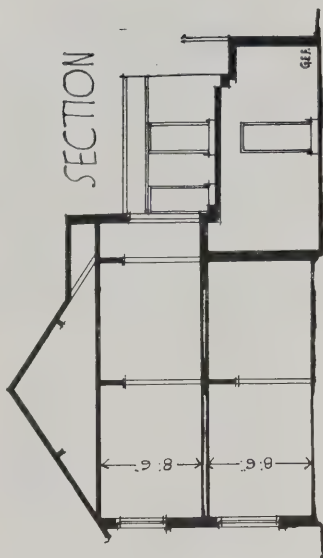


COST ABOUT £1,000.

WALLS OF LOCAL RED BRICKS
PICKED STOCKS BEING USED
FOR ALL FACINGS.
ALL EXTERNAL WALLS ARE 11" CAVITY
ROOFING OF SLATES.



PART BACK ELEVATION :



SECTION

H. L. PATERSON ARIIBA
ARCHITECT:



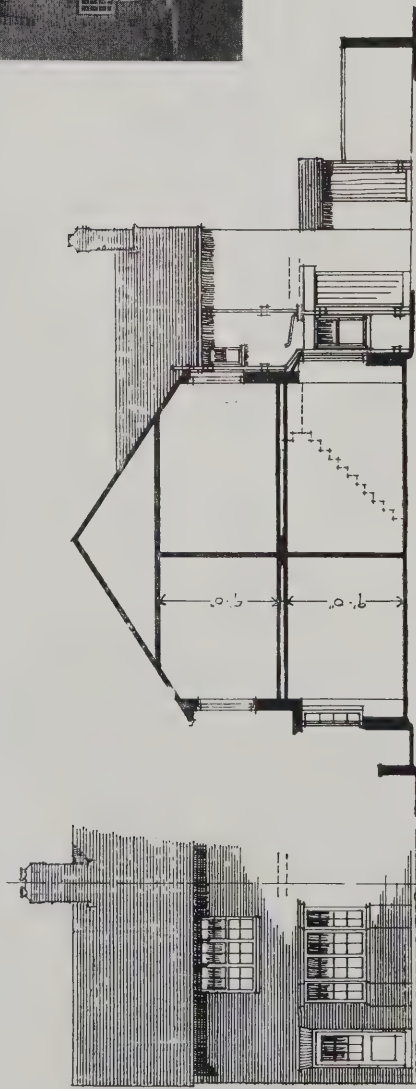
FRONT ELEVATION

FIRST FLOOR PLAN:

GROUND FLOOR PLAN

SEVEN COTTAGES OFF PROSPECT ROAD CADISHEAD

COST £199 PER COTTAGE
BRICK WALLS WITH RAVENHEAD RUSTIC
BRICK FACINGS
ROOFING OF WELSH SLATES



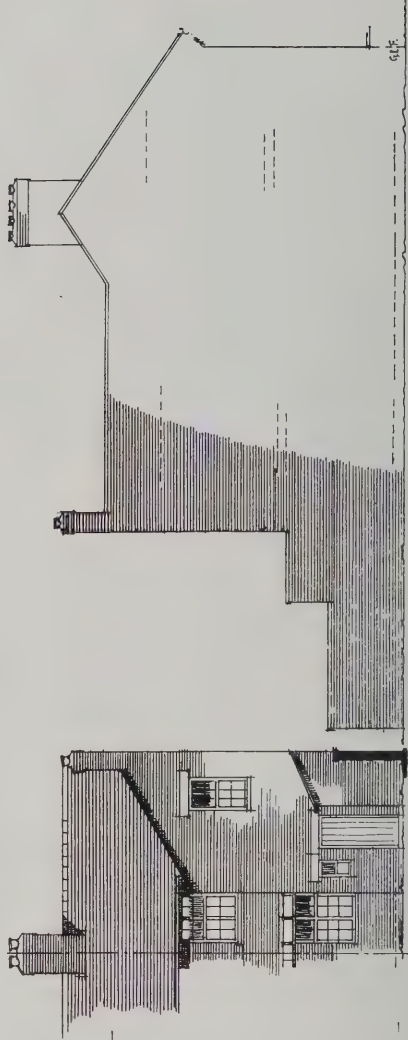
SECTION :

FRONT
ELEVATION :

FIRST FLOOR PLAN :

GROUND FLOOR PLAN :

10 5 0 10 20 30 40 FT



BACK
ELEVATION :

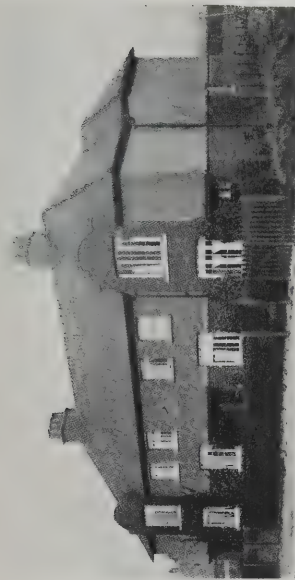
END ELEVATION :

G. HERBERT KAY A.M.I.C.E.
ARCHITECT :

BLOCK OF FOUR COTTAGES. PRIMROSE AVENUE. WINCOBANK, SHEFFIELD.

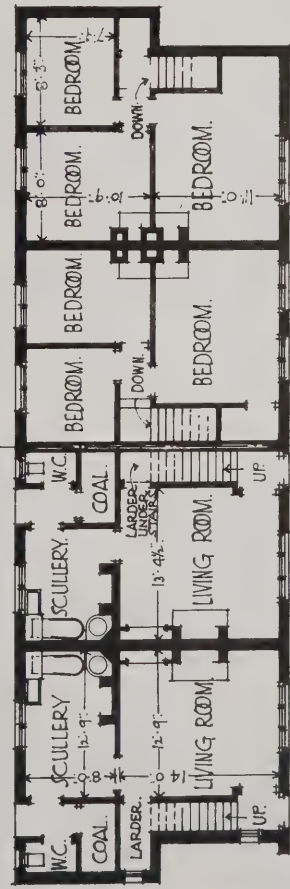
COST £200 PER COTTAGE.

ALL EXTERNAL WALLS ARE 1 1/2" CAVITY.
LOCAL BRICKS WERE USED WITH RED
PRESSED FACINGS AND ROUGHCAST.
ROOFING OF TILES.



FRONT ELEVATION :

BACK ELEVATION :



GROUND FLOOR PLAN : FIRST FLOOR PLAN :



END ELEVATION :

SECTION :

H. L. PATERSON A.R.B.A.
ARCHITECT :



BACK ELEVATION :

FT. 10 5 9 10 20 20 40 FT.

PAIR OF
COTTAGES AT
OVING,
NR. AYLESBURY.

COST £ 285 PER COTTAGE

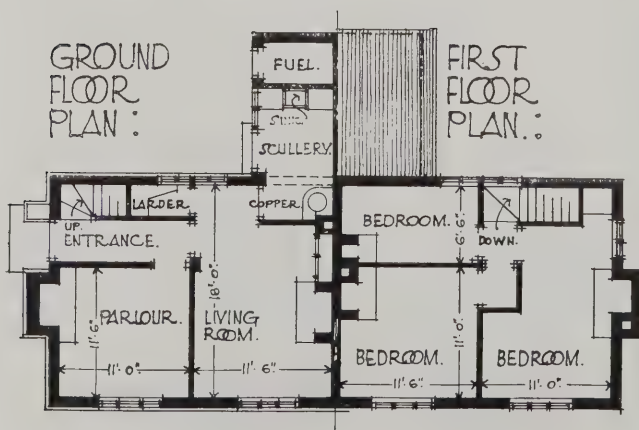
MAIN WALLS BRICK FINISHED WITH ROUGHCAST.
FACINGS OF SAND STOCKS.
ROOFING OF LOCAL SAND FACED TILES.
WINDOWS AND DOORS, RED DEAL PAINTED.



FRONT ELEVATION :



SECTION :



GROUND
FLOOR
PLAN :

FIRST
FLOOR
PLAN :

END ELEVATION :



BARRY PARKER &
RAYMOND UNWIN. FRIBA
ARCHITECTS :



PAIR OF
COTTAGES AT
OVING. NR. AYLESBURY,
BUCKS. :

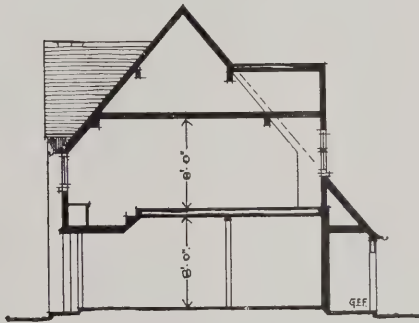
COST £ 242. PER COTTAGE
MAIN WALLS BRICK FINISHED WITH ROUGHCAST.
FACINGS SAND STOCK AND ALSO THE
OUTBUILDINGS.
WINDOWS AND DOORS OF RED DEAL PAINTED.



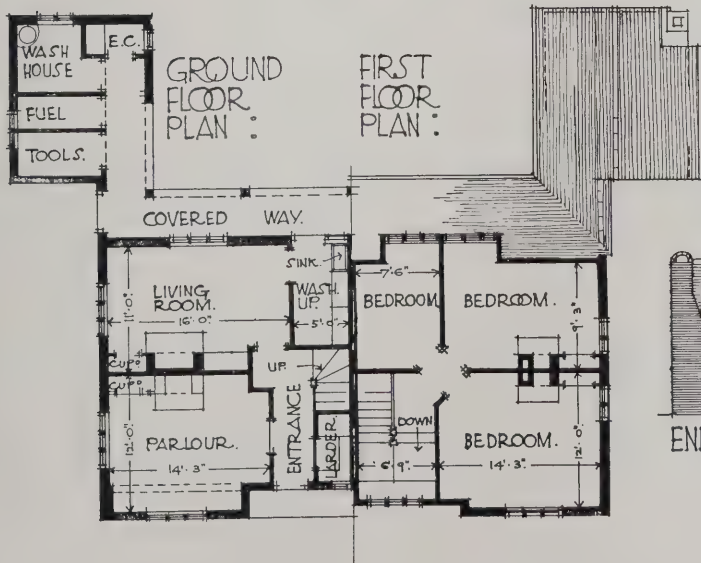
BACK ELEVATION :



FRONT ELEVATION :



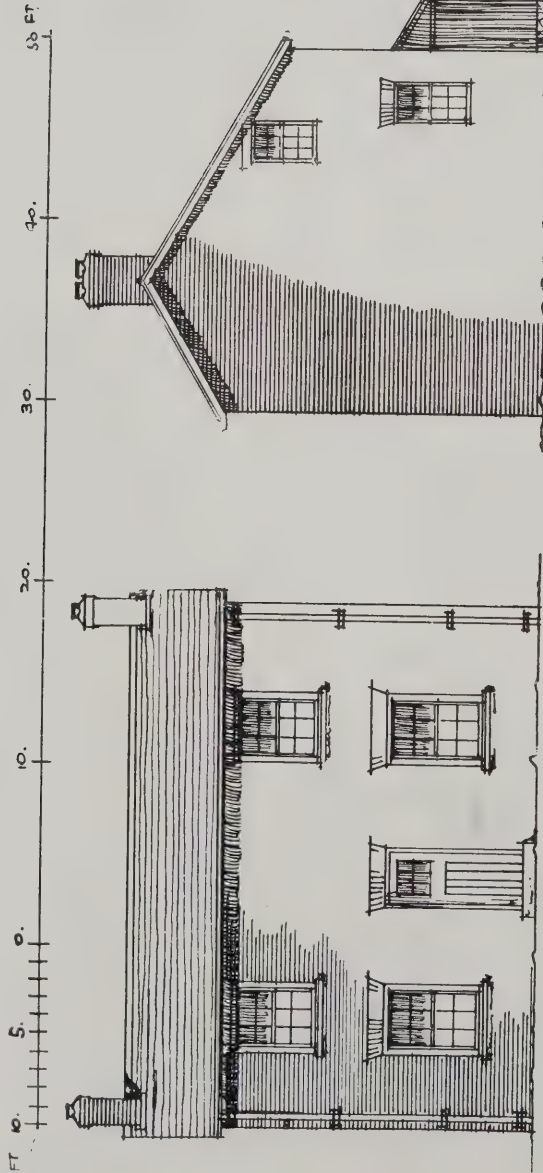
SECTION :



END ELEVATION :

BARRY PARKER, &
RAYMOND UNWIN, FRIBA
ARCHITECTS. :

COTTAGES AT WOODSTOCK OXON.

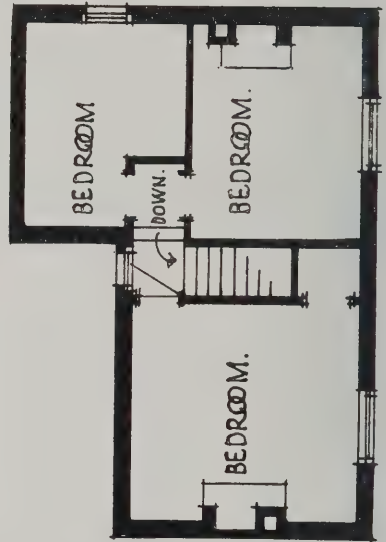


FRONT ELEVATION :

SIDE ELEVATION :



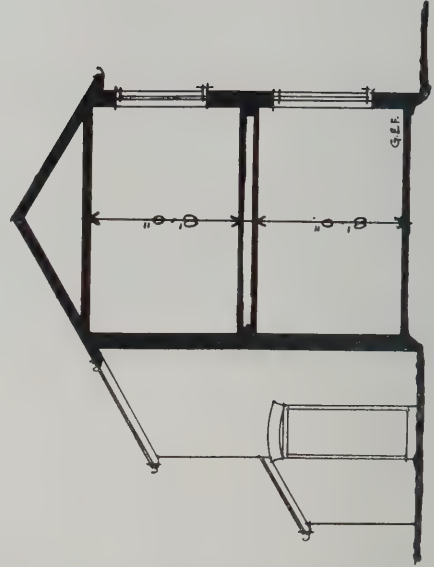
GROUND FLOOR PLAN :



FIRST FLOOR PLAN :



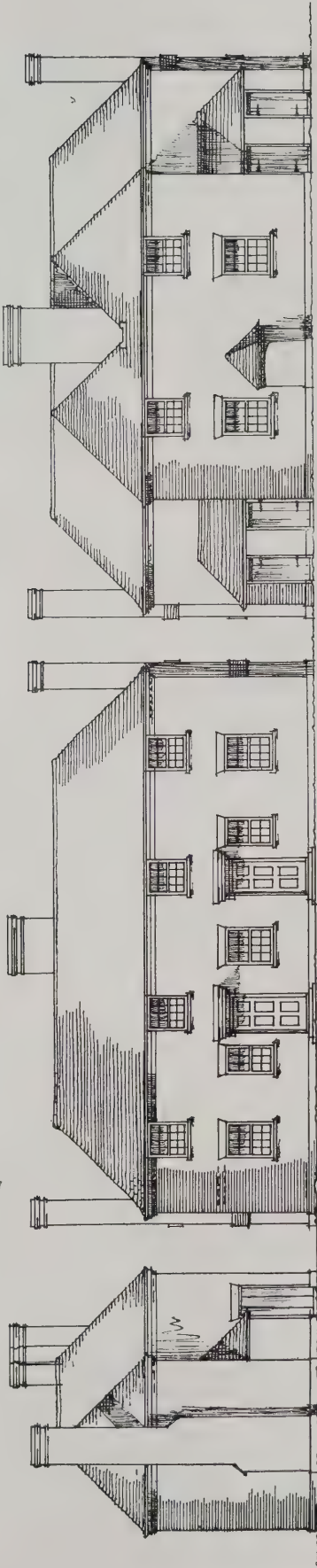
COST £195. PER COTTAGE
INCLUDING DRAINAGE & WATER SUPPLY.
WALLS IN RED SANDSTOCKS FROM
CUMNOR. PERKS.
ARCHES RUBBED & GAUGED WITH
TWO COURSES TILE OVER.
ROOFING OF BANGOR SLATES.
ALL FLOORS OF 1" DEAL BATTENS
EXCEPT SCULLERY ETC WHICH
ARE OF 3" RED QUARRIES.



SECTION : FRANK MOUNTAIN. M.S.A.
ARCHITECT :

PAIR OF
COTTAGES AT
HIGHCLERE
BERKS.

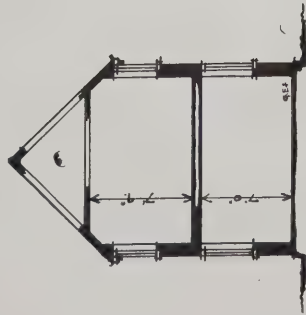
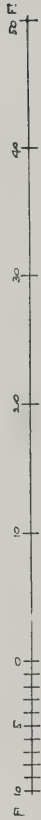
TOTAL COST OF
COTTAGES £225 EACH
1 1/2" HOLLOW WALLS WERE EMPLOYED
ROOFING IS OF OLD HAND MADE
TILES
GREY BURNED KILN BRICKS USED FOR
THE GENERAL WALLING THE GABLES AND
DIAMOND WORK BEING IN RED BRICK.
SLASH FRAMES FLUSH WITH OUTER FACE
OF WALL WITH REVEALS BEHIND



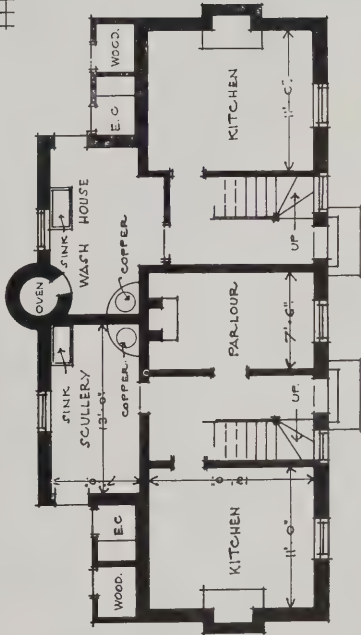
WEST ELEVATION:

SOUTH ELEVATION:

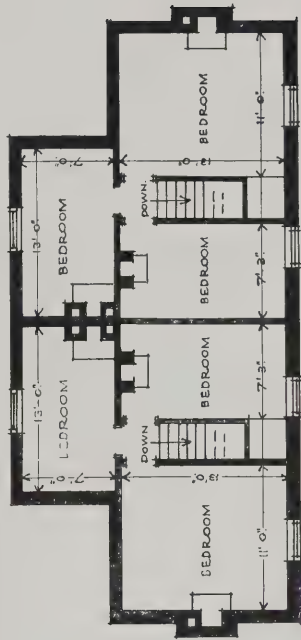
NORTH ELEVATION:



SECTION:



GROUND FLOOR PLAN:



FIRST FLOOR PLAN:

FRANCIS BACON
ARCHITECT:

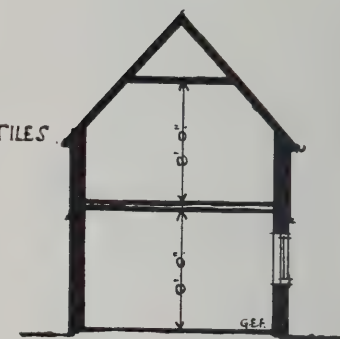
COTTAGE
AT
DIBDEN.

SOUTHAMPTON :

TOTAL COST ABOUT £200.

11" HOLLOW USED UP TO UNDERSIDE
OF JOISTS AFTER WHICH IS
PLASTER ON EXPANDED METAL :

ROOFING IS OF BRIDGWATER TRIPLE TILES



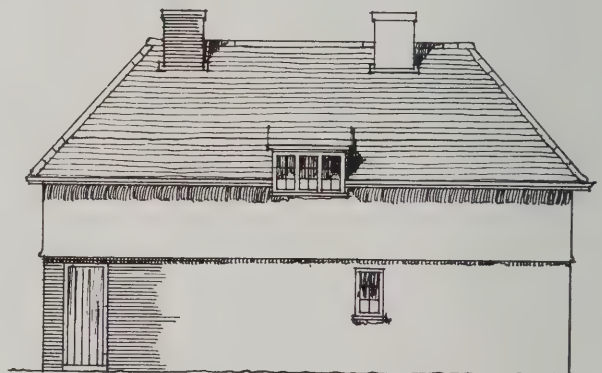
SECTION :



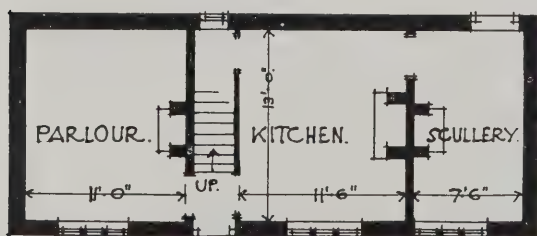
END ELEVATION :



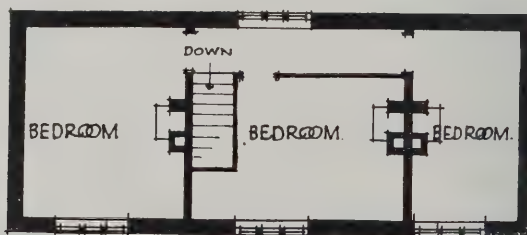
FRONT ELEVATION :



BACK ELEVATION :



GROUND FLOOR PLAN :



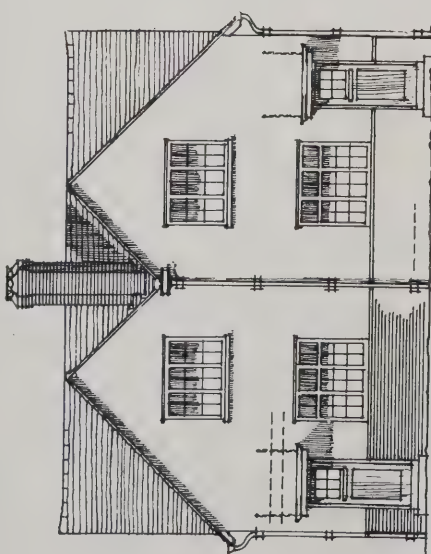
FIRST FLOOR PLAN :



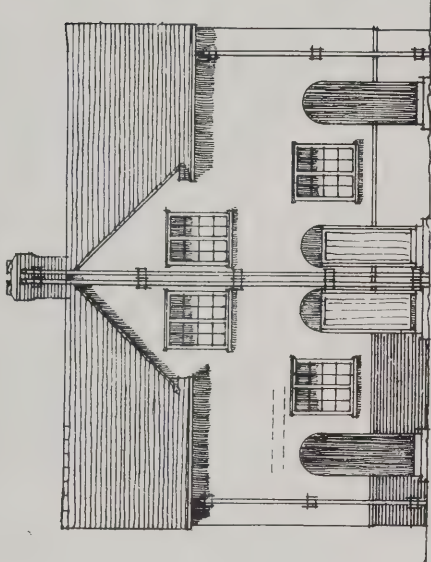
A.H. CLOUGH.
ARCHITECT.

PAIR OF COTTAGES
AT WOKING :

RED SAND FACED BRICK PLINTH
WITH ROUGHCAST OVER. SAND
FACED TILES.



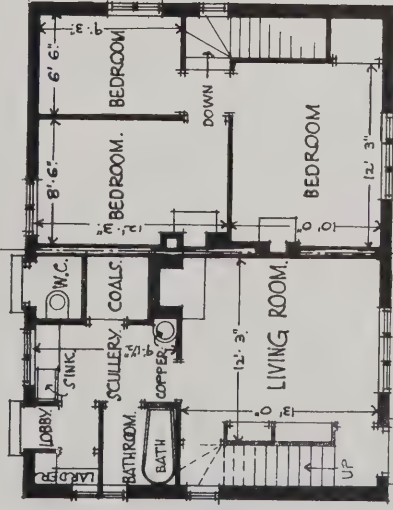
FRONT ELEVATION :



BACK ELEVATION :



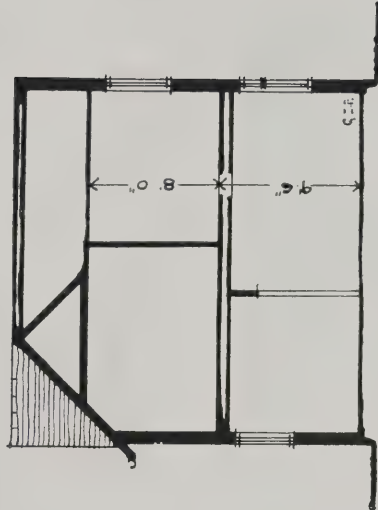
COST £220 PER COTTAGE



GROUND FLOOR
PLAN :



END ELEVATION :

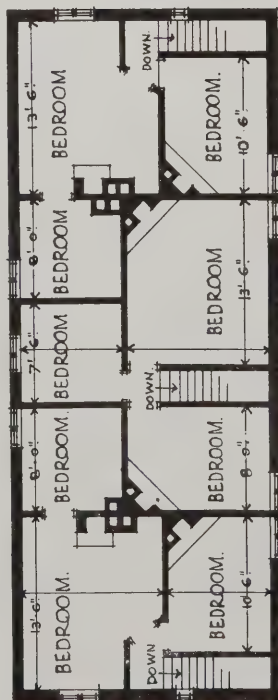
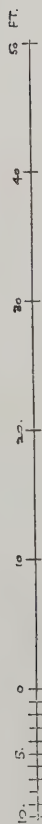


SECTION :

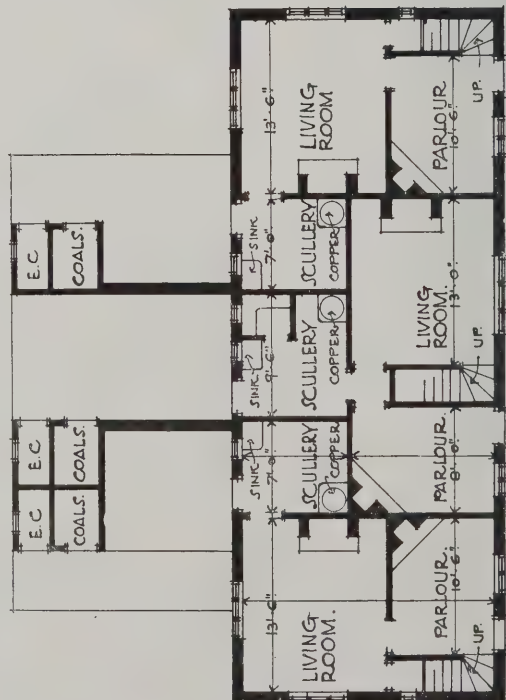
E.C.P. MONSON, F.R.I.B.A., F.S.I.
ARCHITECT :

THREE COTTAGES AT BOCKING, ESSEX.

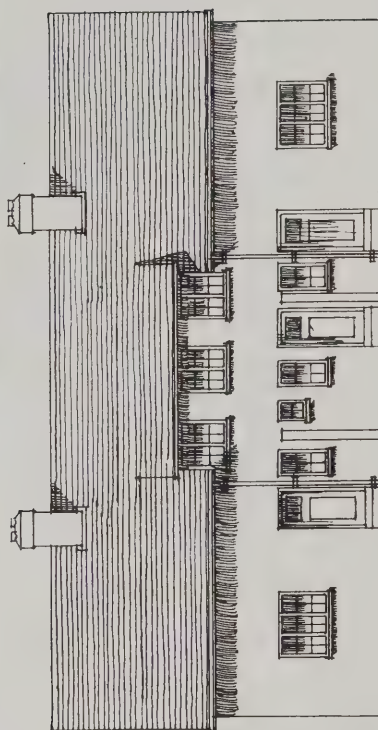
COST £150 PER COTTAGE
INCLUDING DRAINAGE
FLETTON BRICK 9" WALLS ROUGHCAST
OUTSIDE AND WHITEWASHED.
ALL ROOMS PLASTERED AND
DISTEMPERED EXCEPT SCULLERY,
WHICH IS WHITEWASHED.
ROOFING OF RED TILES.



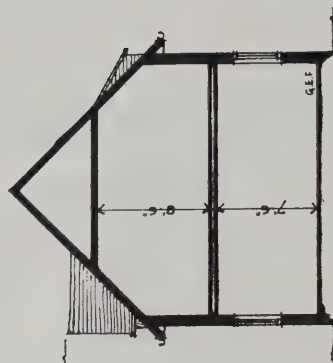
FIRST FLOOR PLAN:



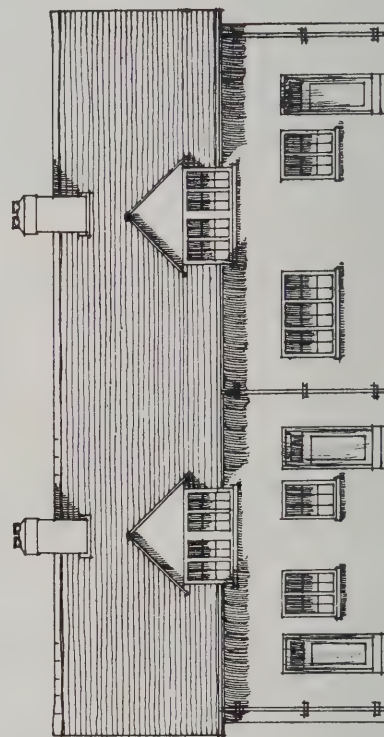
GROUND FLOOR PLAN:



BACK ELEVATION:



SECTION:



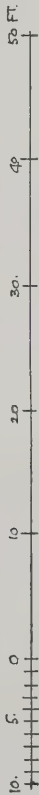
FRONT ELEVATION:

DESIGNED BY
MISS M. E. TABOR.



MARKET BOSWORTH R. D. C.
FOUR COTTAGES AT
MARKFIELD,
LEICESTERSHIRE :

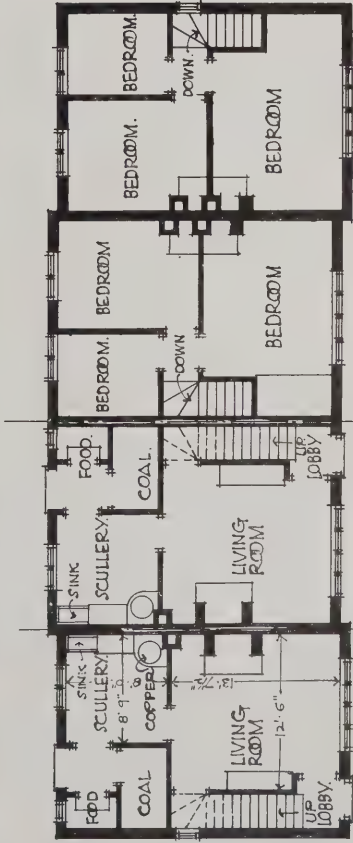
COST £ 156.5.0 PER COTTAGE
RED LOCAL FACING BRICKS &
ROUGH CAST FOR WALLS.
ROOFING OF BLUE BANGOR SLATES



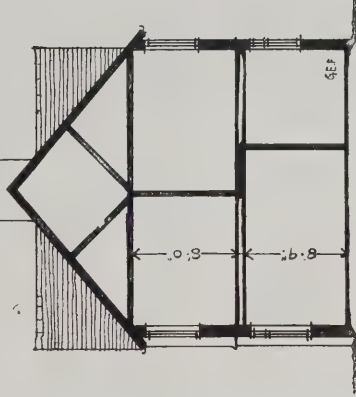
FRONT ELEVATION :



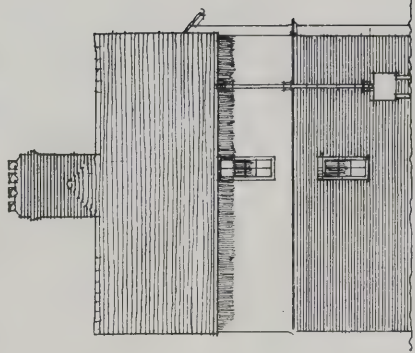
BACK ELEVATION :



GROUND FLOOR
PLAN :



SECTION :



END ELEVATION :

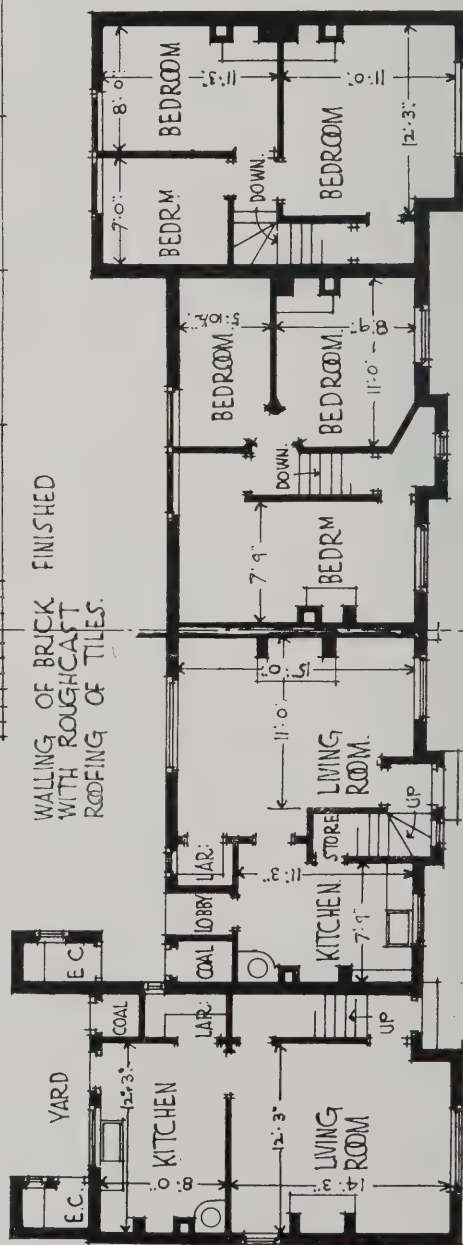
E.C.P. MONSON F.R.I.B.A., F.S.I.
ARCHITECT

BLOCK OF THREE COTTAGES. BURY ROAD, THETFORD

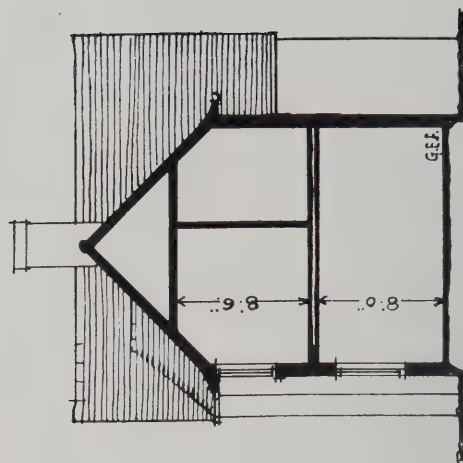


FRONT ELEVATION :

COST £130 PER COTTAGE.



WALLING OF BRICK
WITH ROUGHCAST
ROOFING OF TILES.



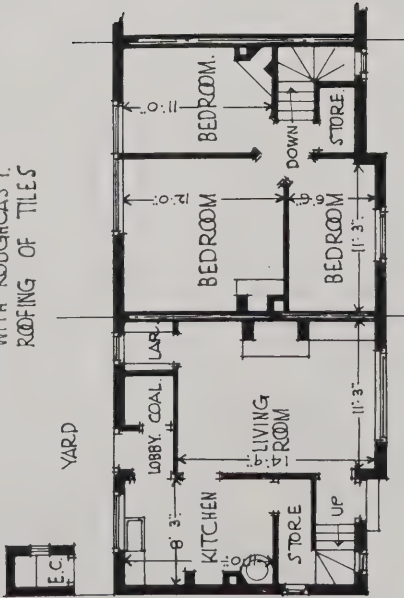
PART GROUND FLOOR PLAN: PART FIRST FLOOR PLAN:

SECTION :

STANLEY J. WEARING. A.R.I.B.A.
ARCHITECT.

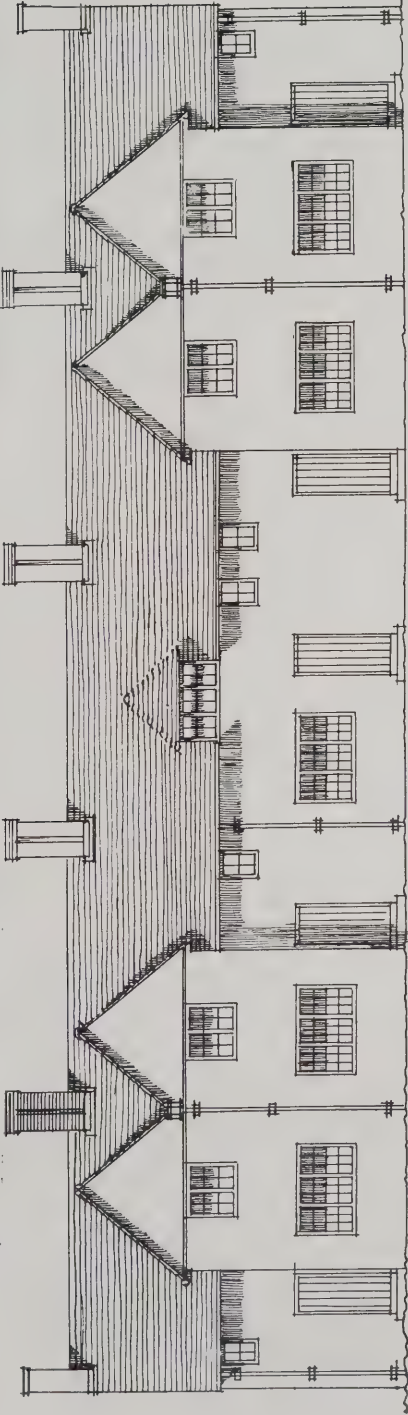
BLOCK OF FIVE COTTAGES
BURY ROAD THETFORD :

COST £130 PER COTTAGE
WALLS OF BRICK FINISHED
WITH ROUGHCAST.
ROOFING OF TILES

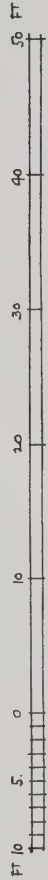


PART GROUND
FLOOR PLAN :

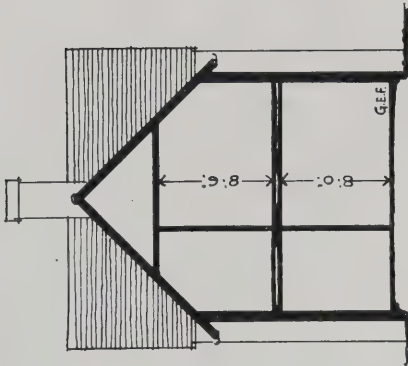
PART FIRST
FLOOR PLAN :



FRONT ELEVATION :



STANLEY J WEARING A.R.I.B.A.
ARCHITECT :



STANLEY J WEARING A.R.I.B.A.
ARCHITECT :

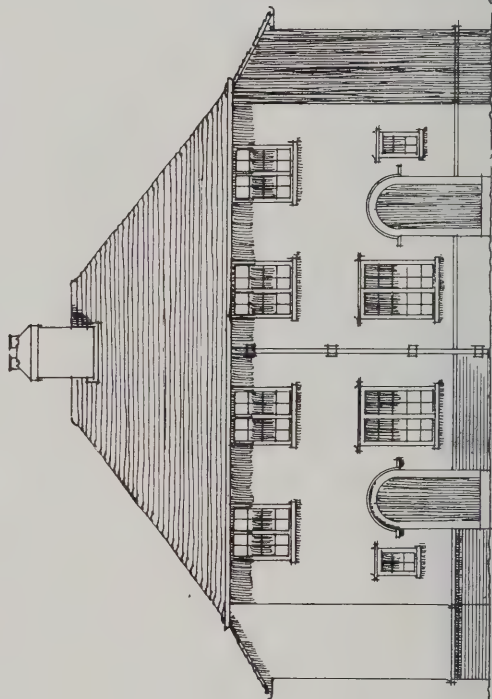
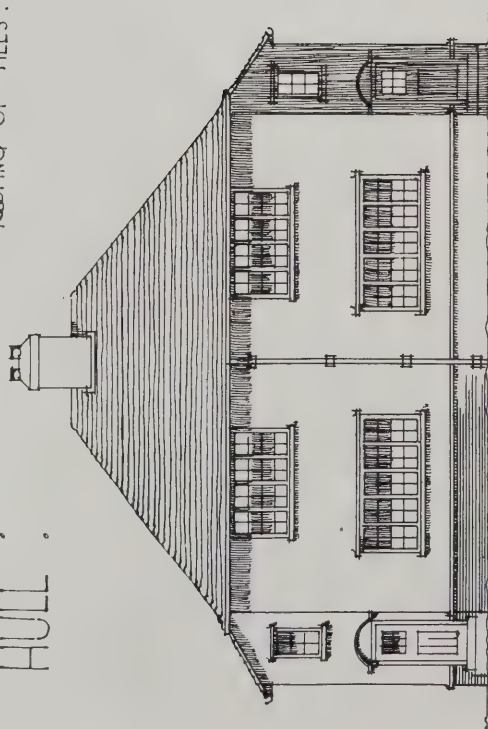
PAIR OF COTTAGES AT HULL.

COST £ 200 PER COTTAGE.
WALLING FINISHED WITH
ROUGHCAST
ROOFING OF TILES.

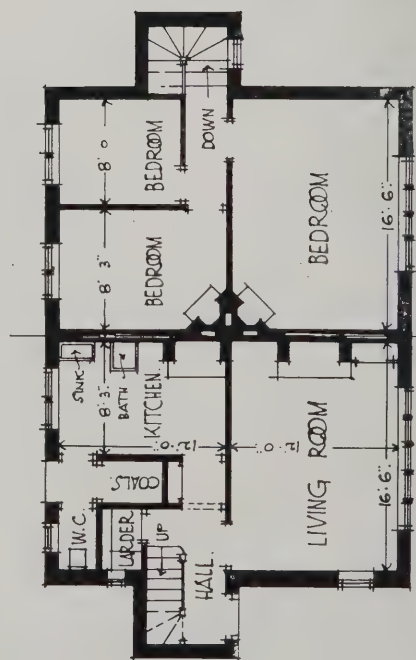


60 FT
50
40
30
20
10
0
5

FRONT ELEVATION:

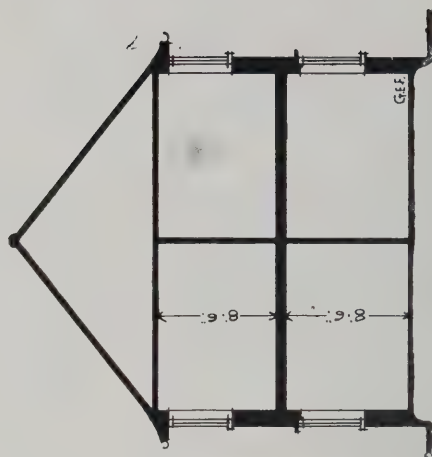


BACK ELEVATION:



FIRST FLOOR
GROUND FLOOR PLAN:

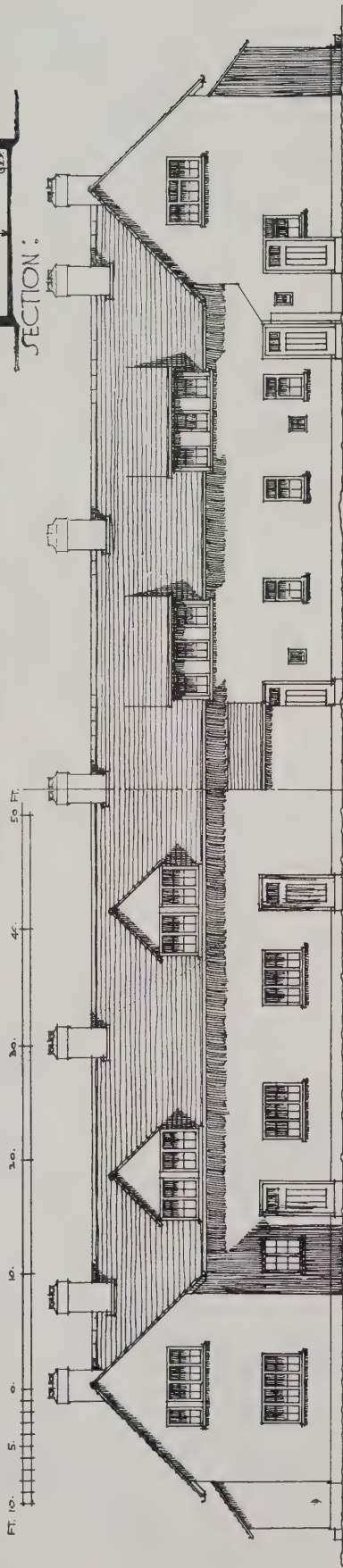
SECTION:



CHAPMAN AND JENKINSON.
ARCHITECTS.

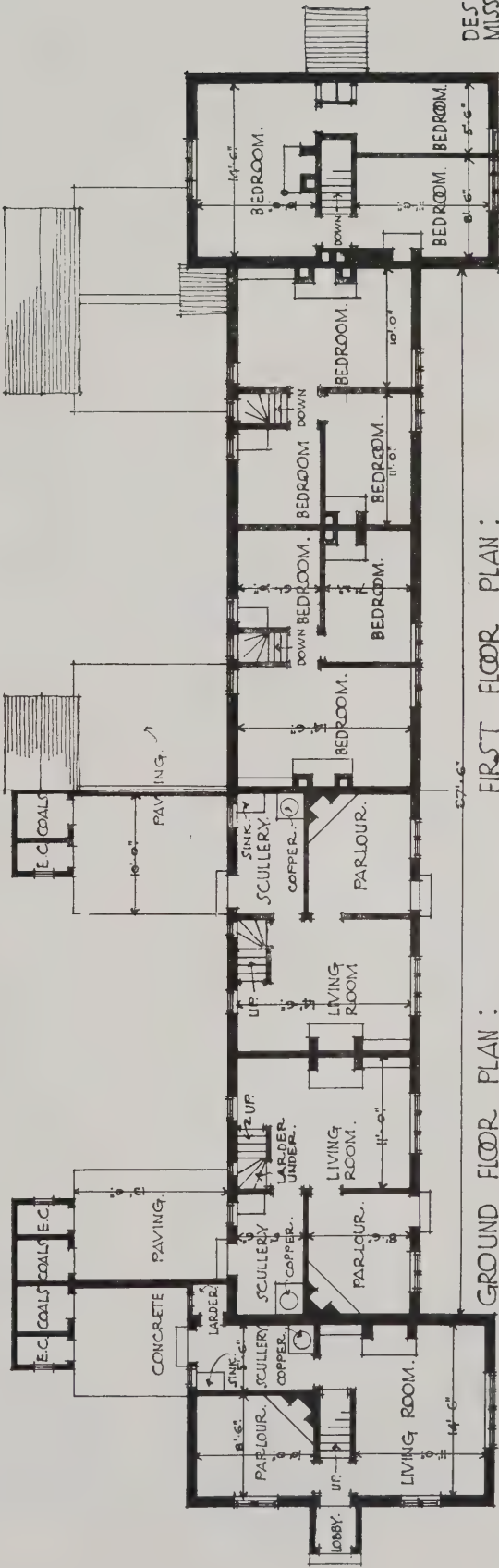
SIX COTTAGES AT
CHURCH STREET,
BOCKING, ESSEX.

COST £ 135. PER COTTAGE INCLUDING DRAINAGE.
FLETON BRICK 9" WALLS ROUGHCAST
OUTSIDE AND WHITEWASHED.
ALL ROOMS PLASTERED & DISTEMPERED EXCEPT
SCULLERY WHICH IS WHITEWASHED. RED TILE ROOF.



HALF FRONT ELEVATION :

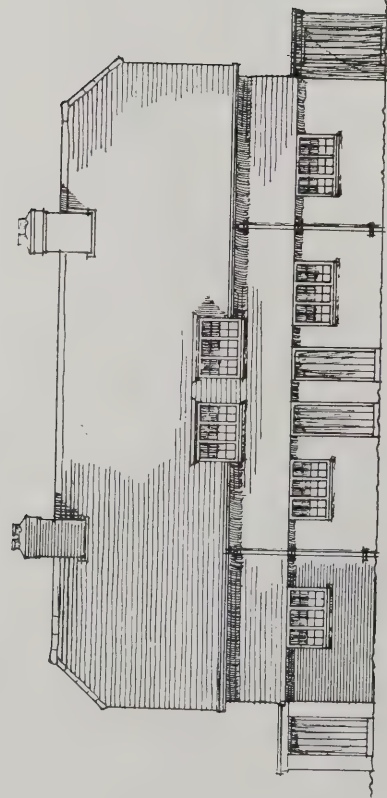
HALF BACK ELEVATION :



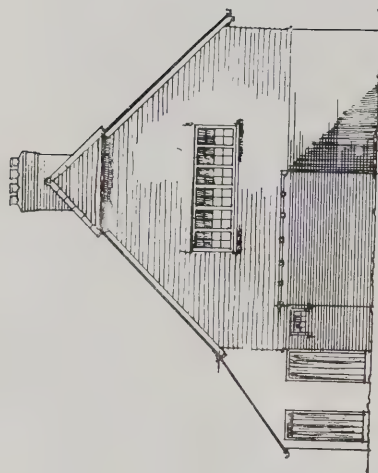
GROUND FLOOR PLAN :

FIRST FLOOR PLAN :

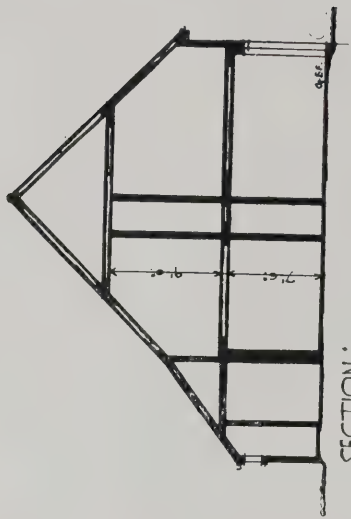
DESIGNED BY
MISS. M. E. TABOR.



FRONT ELEVATION :



SIDE ELEVATION :

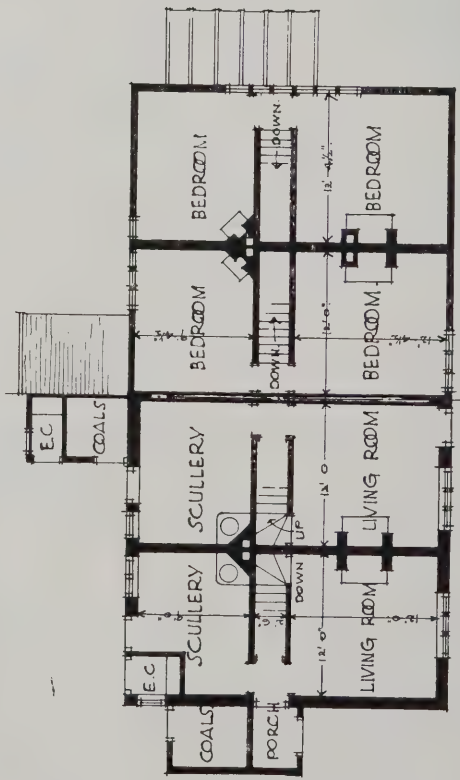


SECTION :

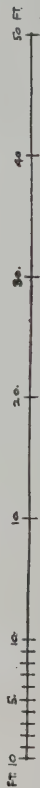
FOUR COTTAGES AT
MARSH GREEN,
HARTFIELD,
SUSSEX :

COST £ 128 PER COTTAGE

1 1/2" HOLLOW WALLS USED UP TO
FIRST FLOOR WITH TIMBER STUDDING
AND WEATHER TILING ABOVE :



GROUND FLOOR :
FIRST FLOOR :
PLAN :

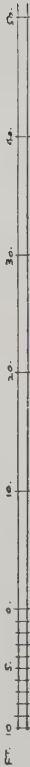


A.H.CLOUGH
ARCHITECT.

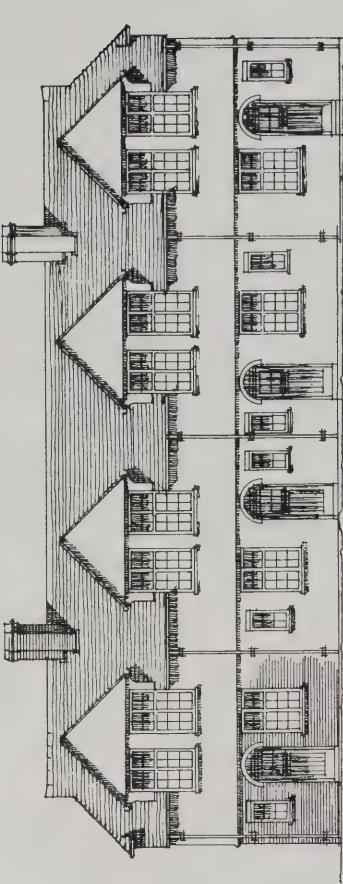
WORKMEN'S DWELLINGS
 CLINE ROAD,
 GUILDFORD.

COST £175 PER COTTAGE.

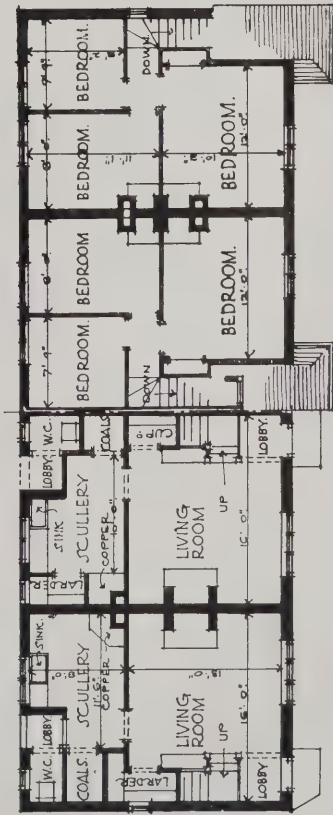
WALLS OF PURPLE STUCCO TO FIRST FLOOR LEVEL.
 CREAM COLOURED STUCCO ABOVE
 ROOFING OF SAND FACED PLAIN TILES.



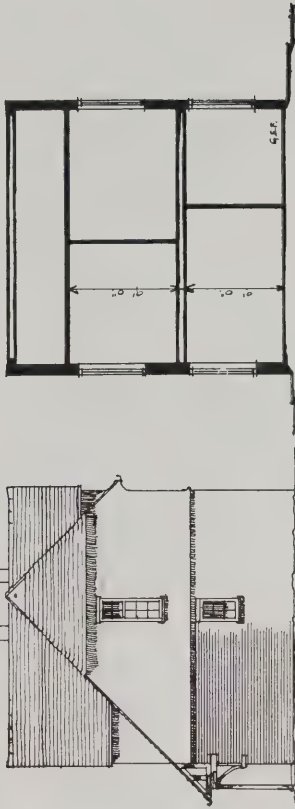
FRONT ELEVATION :



BACK ELEVATION :



GROUND FLOOR PLAN :



SIDE ELEVATION :

SECTION :

T. J. CAPP
 ARCHT.

BLOCK OF SIX COTTAGES. COMMON VIEW. LEITCHWORTH:

COST £150 - £160 PER COTTAGE.
THE WALLS GENERALLY ARE OF
FLETTON BRICKS, COVERED WITH
ROUGHCAST, WITH A PLINTH OF
LOCAL RED SAND BRICKS.
ROOFING OF SAND-FACED RED TILES:



FRONT ELEVATION:



PART BACK ELEVATION:



GROUND FLOOR PLAN:

FIRST FLOOR PLAN:



END ELEVATION:

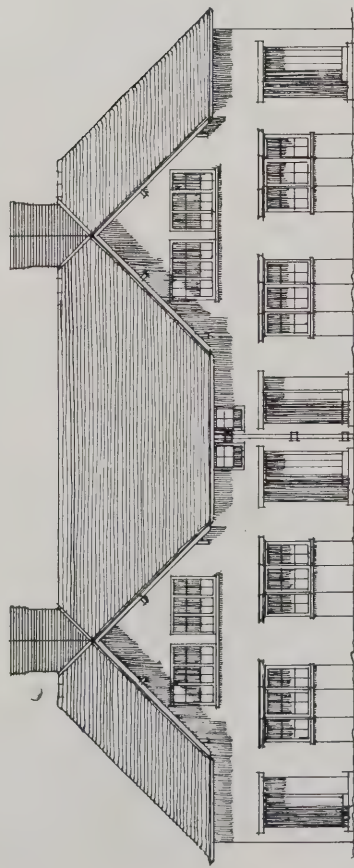
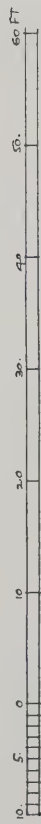
SECTION:

H.L. PATERSON
ARCHITECT.

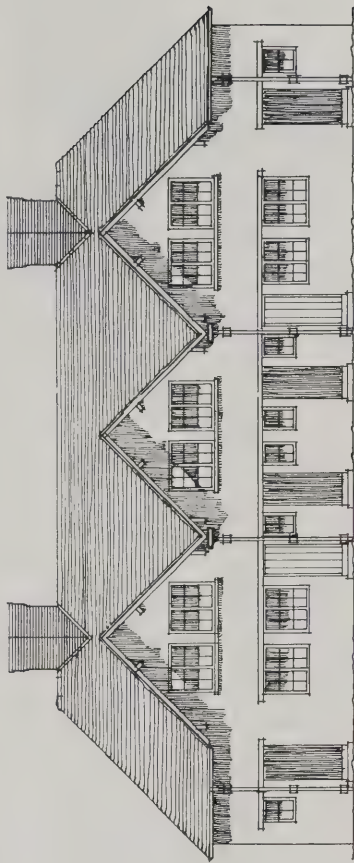
FOUR COTTAGES
IN GARDEN ESTATE.
NR YORK.

COST £ 194 PER COTTAGE.

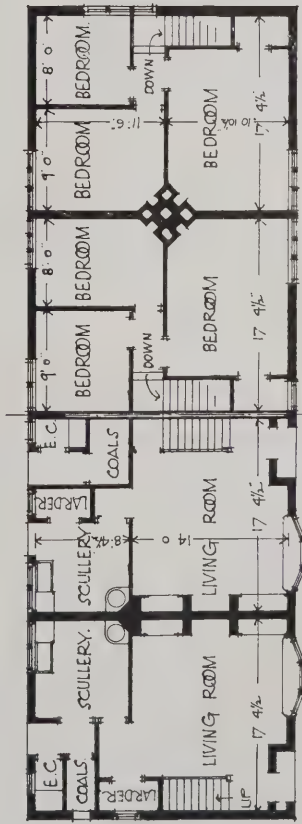
WALLING OF LOCAL BRICKS WHITEWASHED
ROOFING OF SAND FACED HAND MADE TILES
WOODWORK RED DEAL PAINTED



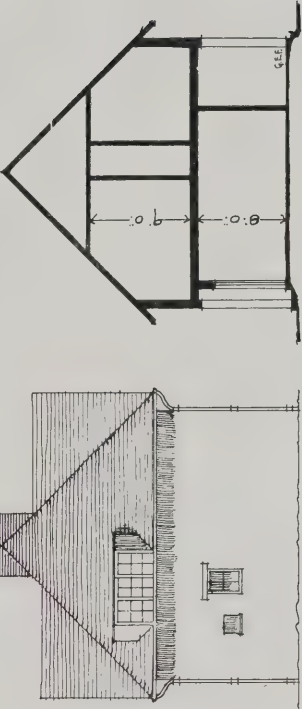
FRONT ELEVATION :



BACK ELEVATION :



GROUND FLOOR PLAN :



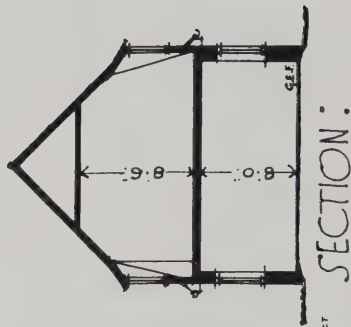
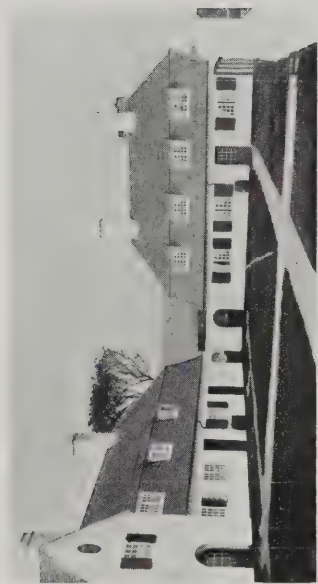
SIDE ELEVATION :

SECTION :

BARRY PARKER &
RAYMOND UNWIN
ARCHITECTS :

FIVE COTTAGES
AT A SEA-SIDE VILLAGE
CO. ANTRIM.

TOTAL COST £980. (£196 PER COTTAGE)
11" HOLLOW BRICK WALLS CEMENT HARLED
AND WHITENASHED
ROOFING OF SMALL ROUGH
PORTLAND CEMENT GRAY SLATES

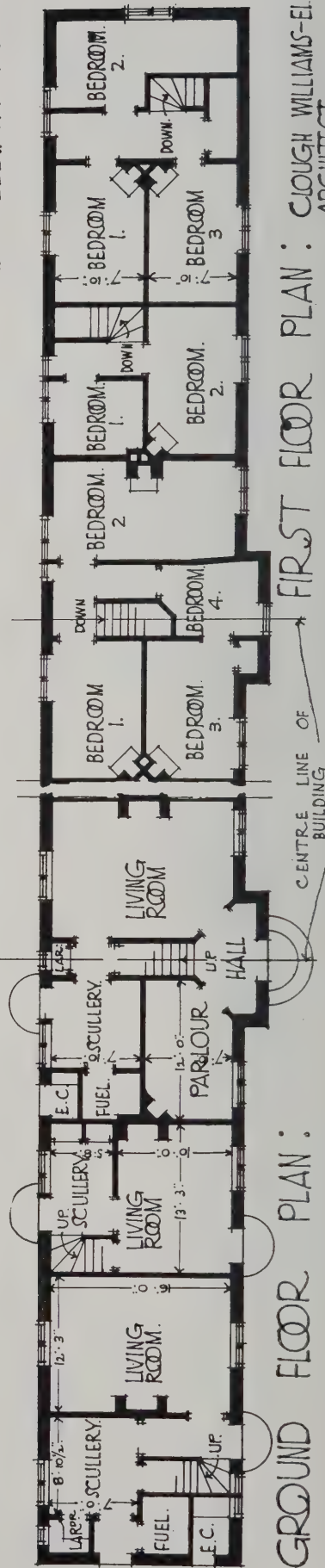


SECTION:



FRONT ELEVATION:

SIDE ELEVATION:



GROUND FLOOR PLAN:

FIRST FLOOR PLAN:

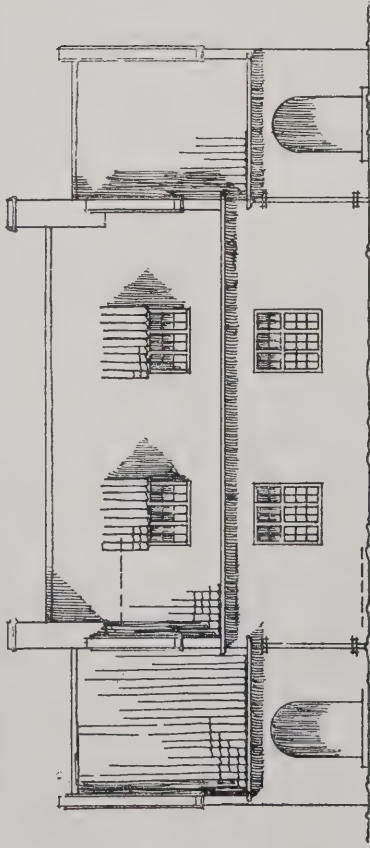
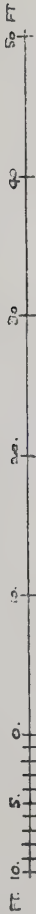
CENTRE LINE OF
BUILDING

CLOUGH WILLIAMS-ELLIS.
ARCHITECT

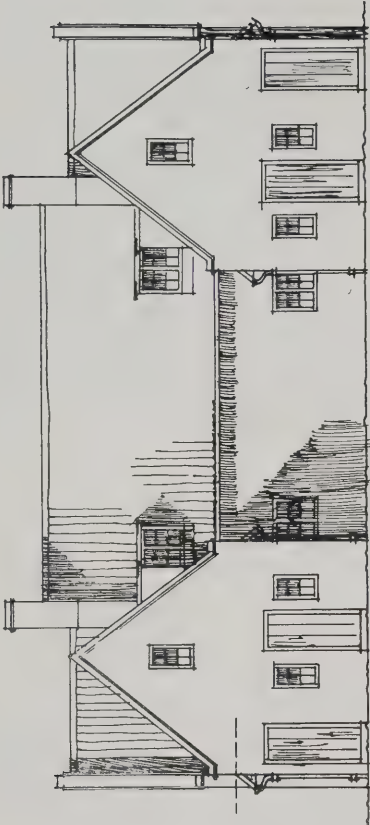
PAIR OF
 COTTAGES AT
 BURTON, CHESHIRE :

COST £220 0 PER COTTAGE

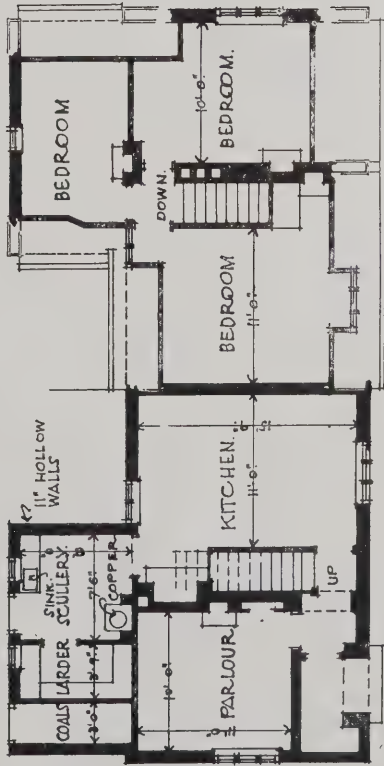
11" HOLLOW WALLS WHITEWASHED
 ROOFING OF PANTILES.



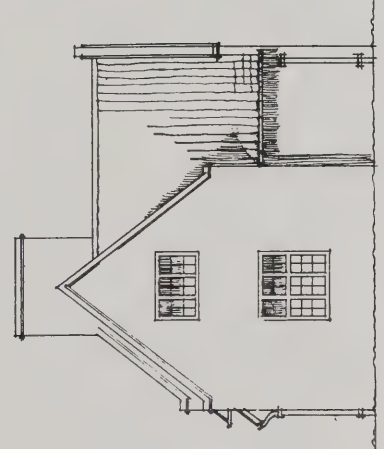
FRONT ELEVATION :



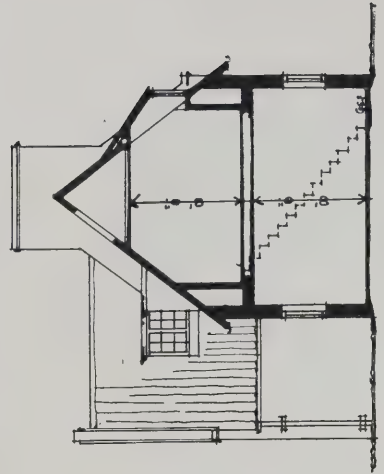
BACK ELEVATION :



GROUND FLOOR :
 PLAN :



END ELEVATION :



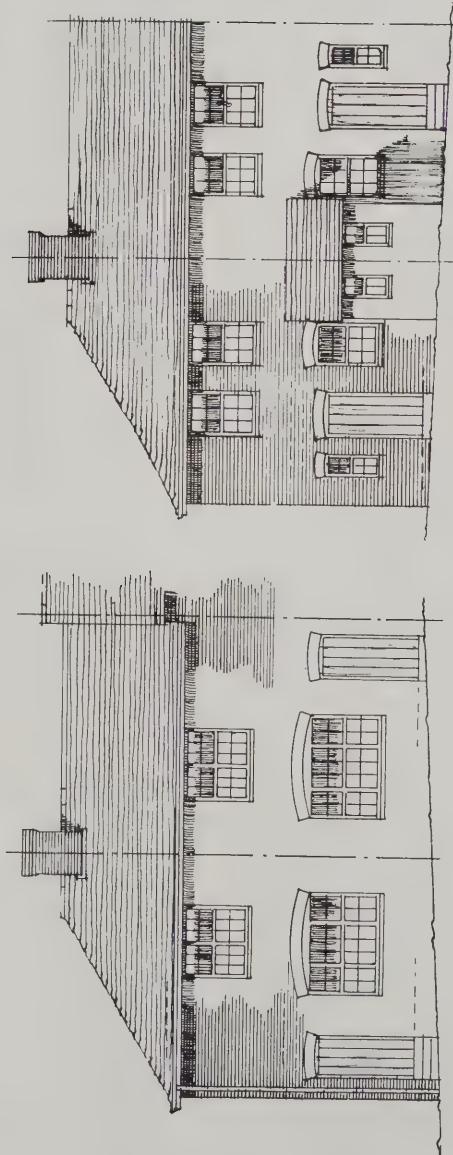
SECTION :
 H. S. GOODHART - RENDEL
 ARCHITECT :

FIRST FLOOR :
 PLAN :

ROW OF SIX COTTAGES BOROUGH OF YEOVIL.



COST £136.16.8 EACH
11" HOLLOW WALLS POINTED WHITE
ROOFING OF SLATES.
BATH PROVIDED WITH FLAP
TO FORM TABLE.

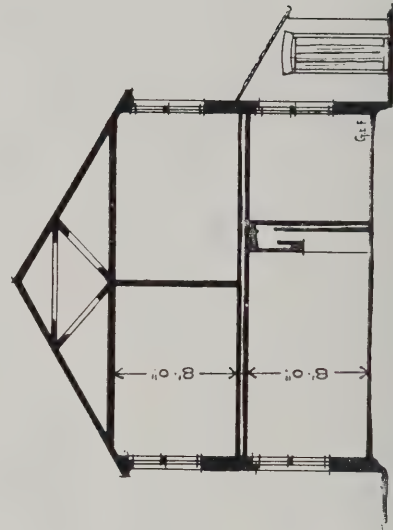


FRONT ELEVATION :

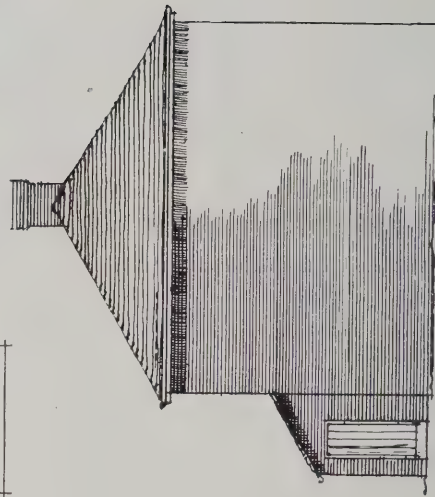
BACK ELEVATION :



GROUND FLOOR
PLAN :



SECTION :



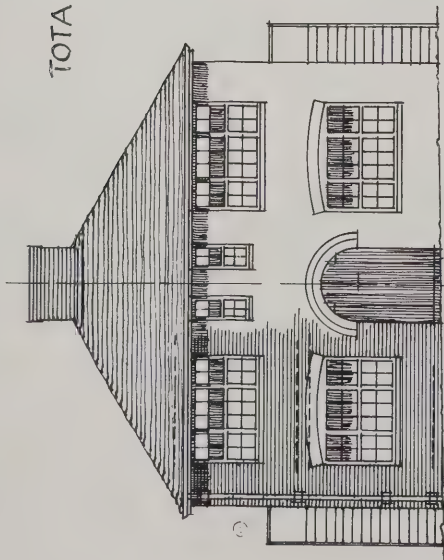
END ELEVATION :
J. PETER & P.F. WARREN ARCHITECTS
AR.18A.
YEOVIL.

BLOCK OF FOUR FLATS, YEOVIL.

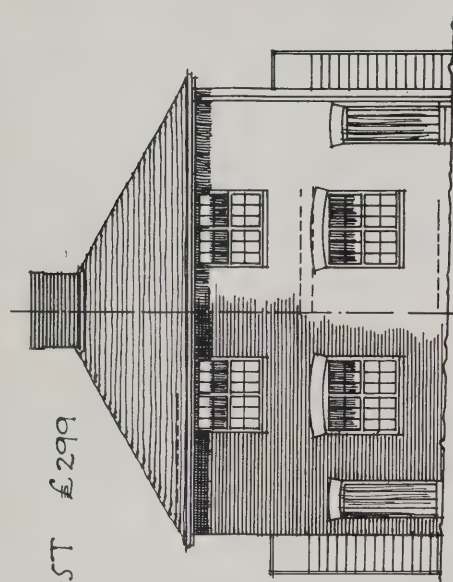
1 1/2" HOLLOW WALLS POINTED WHITE.
ROOFING OF SLATES
IRON STAIRCASES OUTSIDE.

SOMERSET :

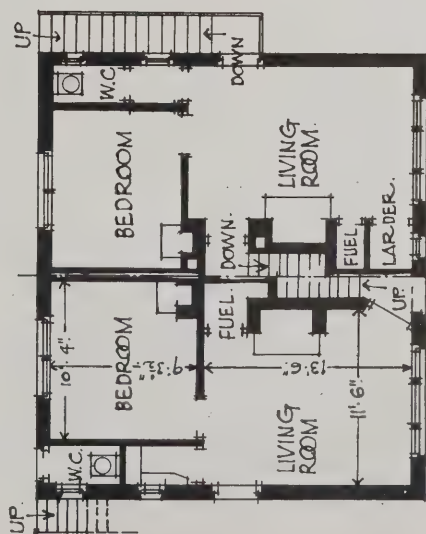
TOTAL COST £299



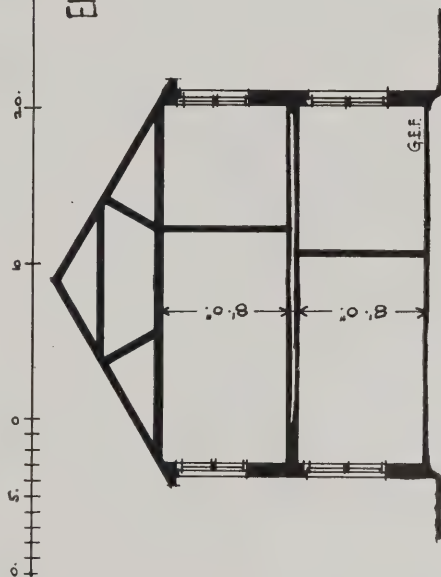
FRONT ELEVATION :



BACK ELEVATION :

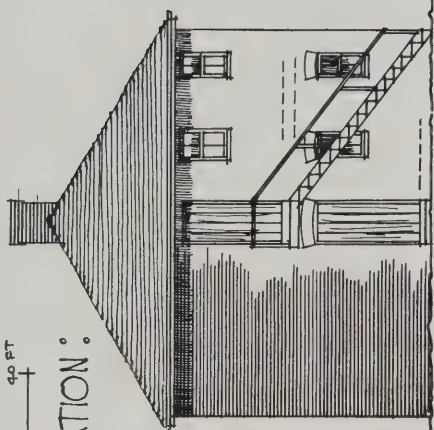


GROUND FLOOR PLAN : FIRST FLOOR PLAN :



SECTION :

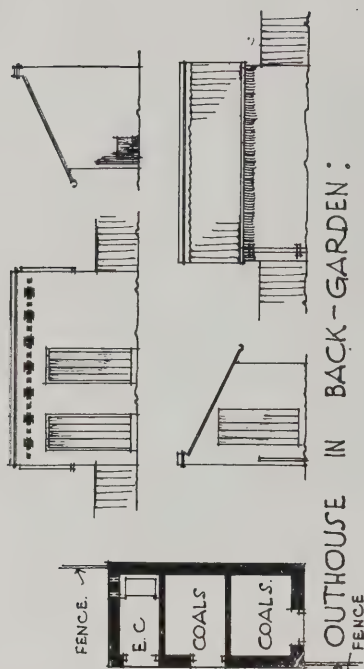
END ELEVATION :



J. PETTER & P. F. WARREN, AR. IBA.
ARCHITECTS : YEOVIL.

PAIR OF COTTAGES AT BURTON MANOR, CHESHIRE.

COST ABOUT £210 PER COTTAGE
11" HOLLOW WALLS JOINTS FILLED FLUSH AND
LIMEWHITED EXTERNALLY
TARRED PLINTH ROUND BUILDING
BRICK ON EDGE ARCH ABOVE ALL WINDOWS
AND A 9" ARCH IN TWO RINGS OVER DOOR.
OPENINGS IN FRONT ELEVATION
ROOFING OF PANTILES WITH JOFFITE OF
EAVES PLASTERED.

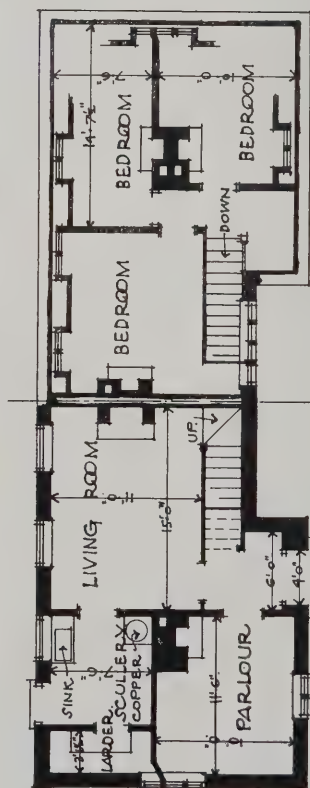


OUTHOUSE IN BACK-GARDEN:



FRONT ELEVATION :

BACK ELEVATION :



GROUND FLOOR
PLAN :

FIRST FLOOR
PLAN :



END ELEVATION :

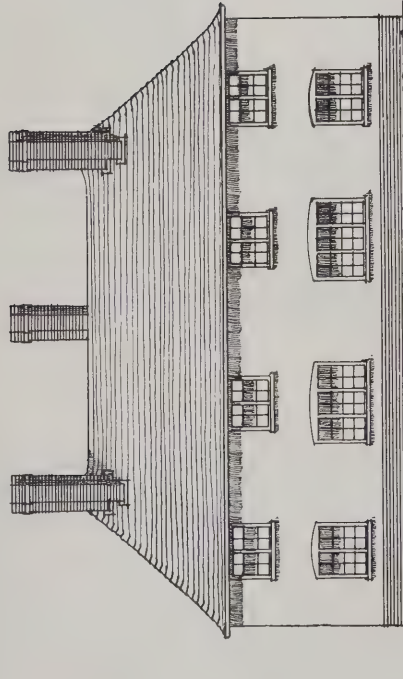
SECTION :

H. S. GODDARD-RENDLE
ARCHITECT

PAIR OF COTTAGES :
BUCTION COURT ESTATE,
NR. LEOMINSTER

COST £ 250 PER COTTAGE

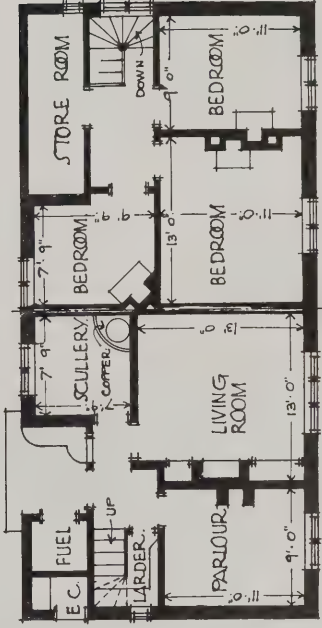
11" BRICK CAVITY WALLS
ROOFING OF PLAIN TILES
HOPPER WINDOWS FITTED
THROUGHOUT



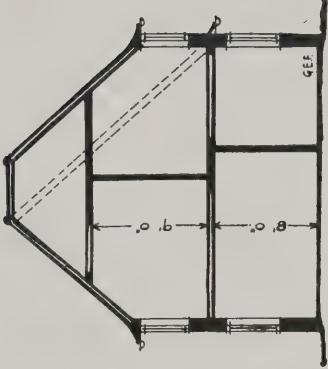
FRONT ELEVATION :



BACK ELEVATION :



GROUND FLOOR
PLAN :



SECTION :

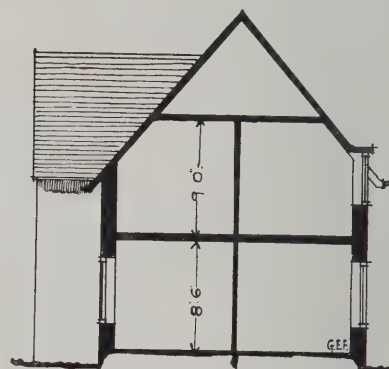
FIRST FLOOR
PLAN :

CLOUGH WILLIAMS - ELLIS
ARCHITECTS

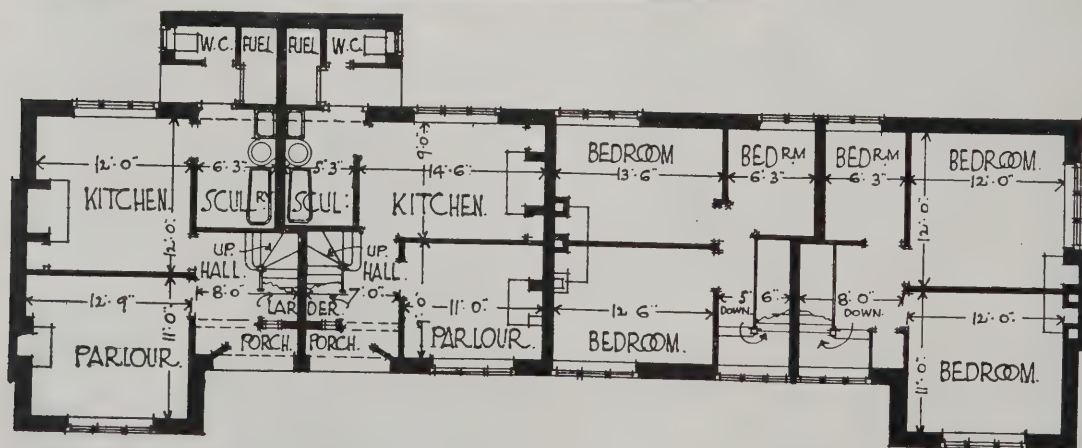
FORESTFACH GARDEN VILLAGE : COST ABOUT £212 PER COTTAGE.
BLOCK OF FOUR COTTAGES. 18" EXTERNAL WALLS OF LOCAL STONE
ROOFING OF TINTAGEL SLATES



FRONT ELEVATION :



SECTION :



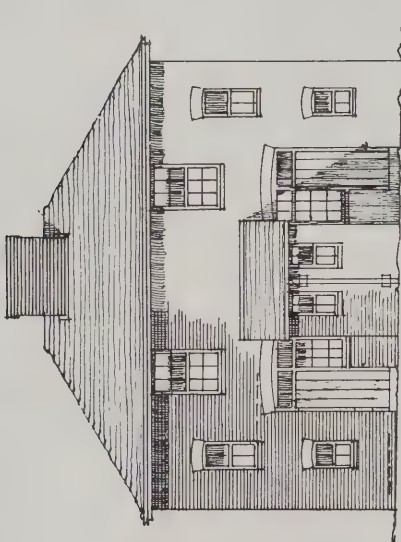
GROUND FLOOR PLAN :

FIRST FLOOR PLAN :

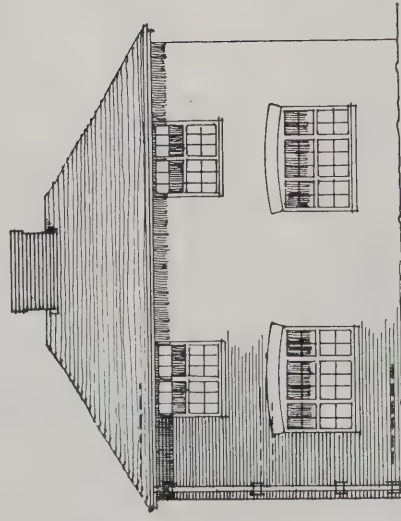
G.L. PEPLER, F.S.I. & E.G. ALLEN, F.R.I.B.A.
ARCHITECTS :

PAIR OF COTTAGES AT YEovil SOMERSET

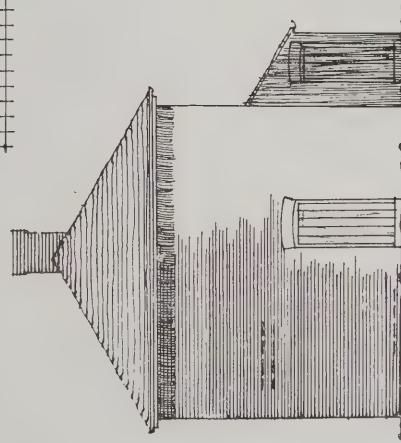
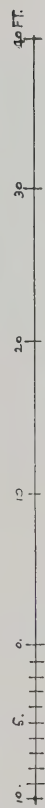
COST £120 EACH.
11" HOLLOW WALLS POINTED WHITE
ROOFING OF SLATES :



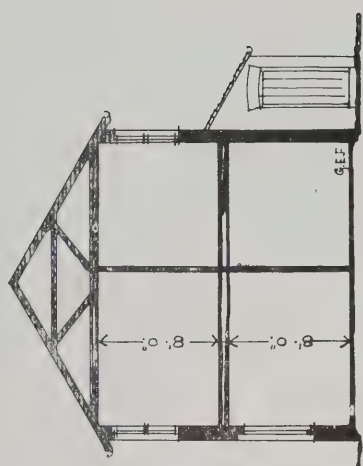
BACK ELEVATION :



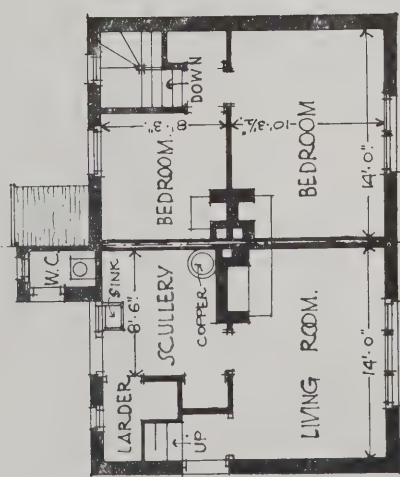
FRONT ELEVATION :



END ELEVATION :



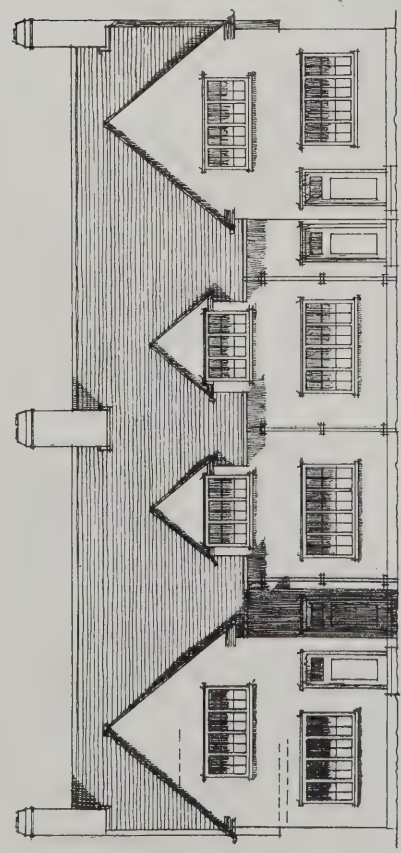
J. PETTER & P.F. WARREN, AR.BA.,
ARCHITECTS : YEovil.



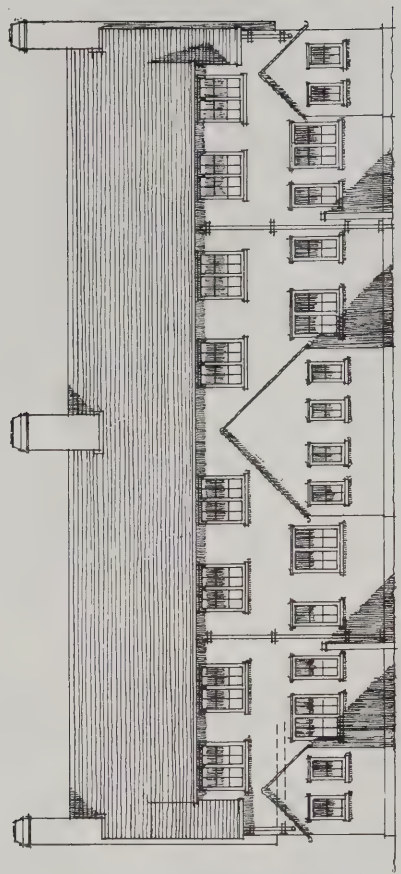
GROUND FLOOR | FIRST FLOOR
PLAN :

BLOCK OF
FOUR COTTAGES :
THE GARDEN VILLAGE
HULL :

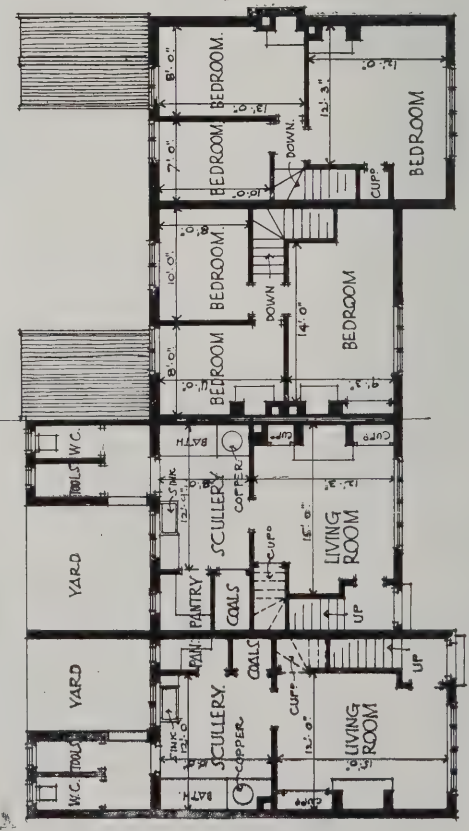
COST £200 PER COTTAGE
BRICK WALLS FINISHED WITH ROUGHCAST.
ROOFING OF HARTSHILL TILES.
SCULLERY FLOORS, WOOLSCROFT'S PAVIORS
OTHER FLOORS 1" P.T. & G. REDWOOD



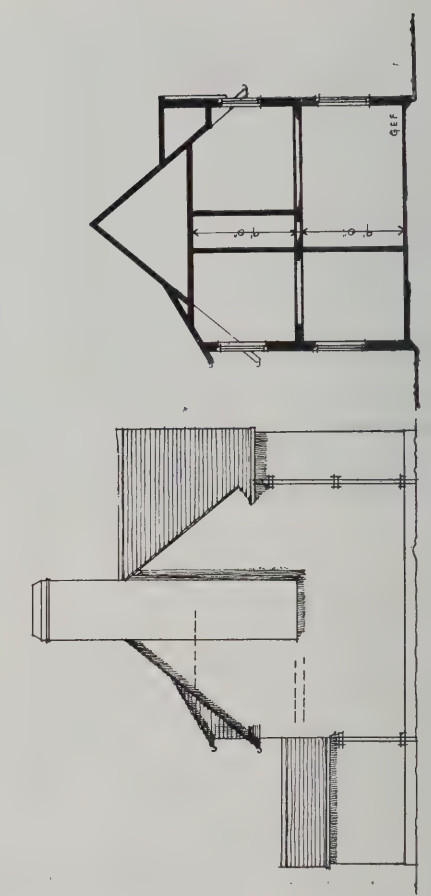
FRONT ELEVATION :



BACK ELEVATION :



GROUND FLOOR
PLAN :



END ELEVATION :

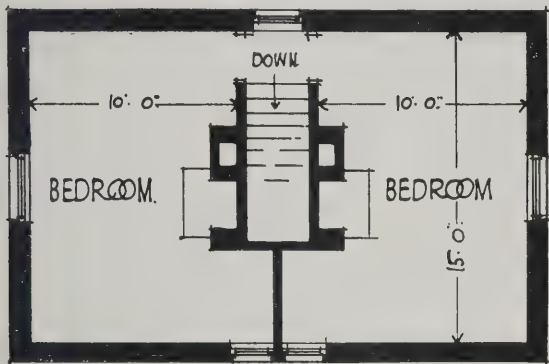
SECTION :

FIRST FLOOR
PLAN :

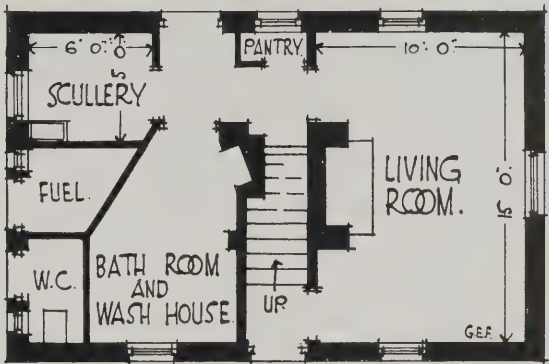
RJLINTON & BARRY A.A.R.I.B.A.
ARCHITECTS :

CONCRETE COTTAGES.
MERTHYR TYDFIL.

COST ABOUT £195 PER COTTAGE,
INCLUDING ROADS AND SITE VALUE
FLOORS, WALLS, STAIRS, CEILINGS
AND ROOFS OF CONCRETE.
WALLS REINFORCED WITH KAHN BARS.
SHEATHED WITH "HY-RIB".



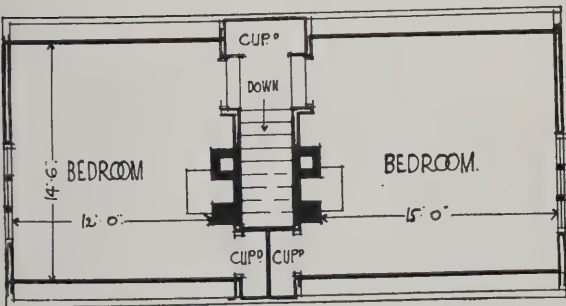
FIRST FLOOR PLAN.



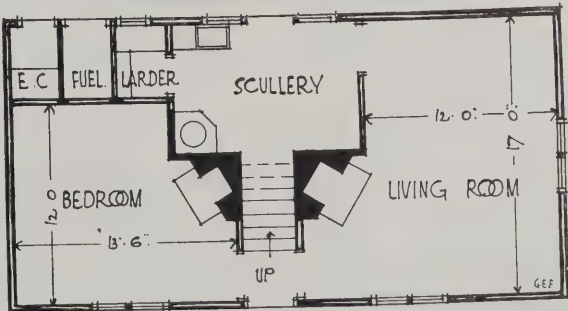
GROUND FLOOR PLAN: F. THACKERAY
BOROUGH ARCHITECT.

COTTAGE AT MERROW COMMON.
NR GUILDFORD.

COST ABOUT £150
WEATHER BOARDING & FRAMING OF DEAL
PATENT ROMAN TILE ROOFING



FIRST FLOOR PLAN.



GROUND FLOOR PLAN: BUILT FOR
J ST LOE STRACHEY Esq.



HOUSES FOR SMALL HOLDERS.

HOUSES for small holdings being of peculiar interest at the present time, it is opportune to give here a summary of the chief conclusions arrived at by the Departmental Committee which recently investigated the subject.

Minimum Requirements.

The Committee, while recognising it as their duty to make practical suggestions for reducing the cost of building, wish to make it clear that they would deprecate any attempt to cheapen the construction at the cost of the ordinary requirements of health, decency, and convenience. They have therefore considered it helpful to fix the following minimum standard of accommodation for a smallholder's house, below which it would be undesirable in any circumstances to fall:—

	Minimum Area. sq. ft.	Approximate Dimensions.	
		ft. in.	ft. in.
Living-room or kitchen.....	180	15 0	12 0
Scullery	80	10 0	8 0
Larder or pantry	24	6 0	4 0
Fuel store	35	7 0	5 0
Bedroom No. 1	150	12 6	12 0
Bedroom No. 2	100	11 0	9 0
Bedroom No. 3	65	9 0	7 3

Approximate cubic space in bedrooms, if averaging 8 ft. high all over, 2,520 cubic ft.

In addition, if the circumstances demanded it, a parlour might be provided, about 12 ft. by 10 ft.

Where a parlour is provided on the ground floor, and there is therefore greater area on the first floor, the minimum sizes of bedrooms should be as follows, instead of those given above:—

	Minimum Area. sq. ft.	Approximate Dimensions.	
		ft. in.	ft.
Bedroom No. 1	160	13 4	12
Bedroom No. 2	120	12 0	10
Bedroom No. 3	110	11 0	10

Approximate cubic space in bedrooms, if averaging 8 ft. high all over, 3,120 cubic ft.

The Living-Room.

The practical convenience of a living-room depends not only upon its size, but also upon its plan and

arrangement. The best shape is probably one not quite square—about 15 ft. by 12 ft. If the fireplace is on one of the short walls, the windows should be on the adjacent long wall, and the door or doors should be placed as near as possible to the corner farthest from the fire and window. If the fireplace is on one of the long walls the room should be made somewhat wider to allow for the projection of the chimney breasts. The window should then be on one of the short walls, and the door may be at the opposite end of the long wall which carries the fireplace, provided it is not less than about the length stated above. The fire should never be placed immediately opposite the only window, otherwise the housewife will stand in her own light when cooking. The portions of the room about the fire and adjacent to the window should not have to be used as passage ways from one door to another, and special care should be taken to avoid planning doors between the fire and the window, on account of the inconvenience resulting from such an arrangement. (See illustration below, C.)

As a rule, one large window is preferable to two small ones, and where there are two, the second should be made quite a minor one.

The living-room should be provided with a cooking range or kitchener, and also with sufficient cupboards and shelves.

The best aspect for the living-room is south or south-east, so that the morning sun may enter.

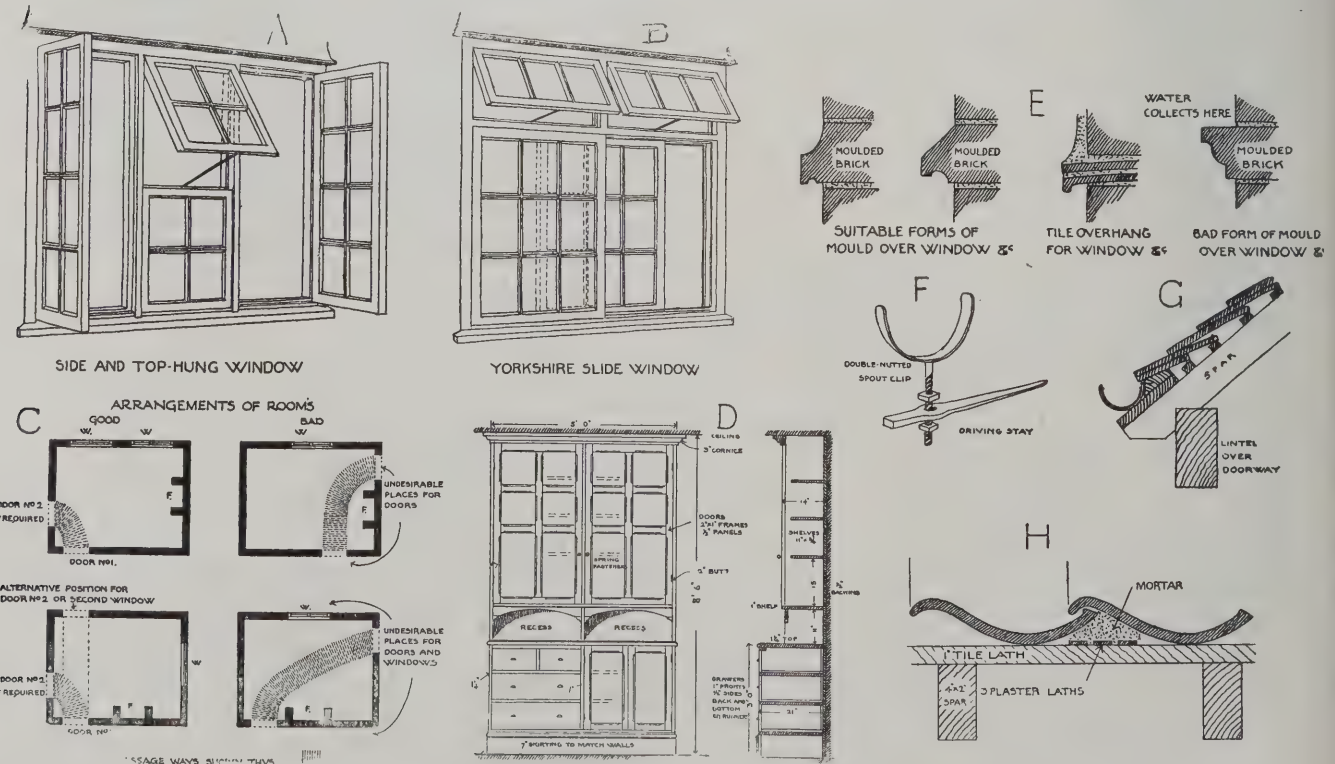
A convenient type of dresser is shown by (D).

Bedrooms.

In the bedrooms the desirable standard to keep in view is a minimum of 500 cubic feet per adult and 250 cubic feet per child; in no case should a bedroom contain less than 500 cubic feet.

In the largest bedroom provision is required not only for the double-bed, but very frequently for one, or even two cots as well; the floor area of this room, therefore, should never be less than 150 square feet, and 160 or 180 feet is a more desirable size.

The principal bedroom having been planned, some liberty in apportioning the remaining space to the



DETAILS OF PLANNING AND CONSTRUCTION OF HOUSES FOR SMALL HOLDERS.

other bedrooms must be allowed, because the exigencies of planning may make it in one case much easier to provide two bedrooms of unequal size, and in another case two of about equal size. Where possible, the second bedroom should preferably be large enough to accommodate two adults, though perhaps it will more often be occupied by two children, or by one adult and one younger person. In the house having a parlour it is often possible to provide, at little extra cost, a quite small fourth room, which will be very useful as a boxroom, or will serve as a bedroom for an occasional visitor.

The important consideration in planning a bedroom is to allow sufficient space for the bed or beds out of the draught from the window, so that there may be no special reason to keep the window closed.

The objection that exists, in the case of the ground-floor rooms, to the door being placed in one of the corners adjacent to the fire is of much less force in the case of a bedroom; indeed, it will often be found that this is a convenient arrangement. Simple wardrobe cupboards are a great boon, and if they consist only of a wooden shelf in a recess, with a frame for curtains and pegs for hanging, they will serve to protect clothes from dust, and help the occupants to keep the rooms tidy.

The Dairy.

In addition to the minimum accommodation mentioned above, it will generally be necessary, in a small-holder's house, to provide a dairy, except in the case of a holding cultivated entirely as a market garden where no cow is kept. The dairy must be separate from the larder; it should not open directly out of the living-room or scullery, and is best entered from outside the house by means of a small covered way, or lobby, adjacent to the scullery door. The aspect should always be either north or north-east; the window should not be of excessive size, and may sometimes with advantage be recessed in the wall or otherwise protected from the slanting rays of the sun. The window may even be shaded by a projecting roof, but it should not open on to such yard space as is likely to be wanting in proper circulation of air.

The dairy must be thoroughly ventilated and, like the larder, should be well lighted by a window, which may be a fixed light if sufficient ventilation is secured by other means. All means of ventilation should be covered with fly-proof copper wire gauze.

The minimum size for a dairy in connection with a small holding should be 40 sq. ft.

General Construction: Walling.

Economy should be sought in careful planning and simplicity of construction, not in the undue cutting down of the quality of the materials, fittings, or workmanship. Cavity walls are recommended as the most effective and economical means of securing a dry interior. Failing this, the outside of the house should be protected with a good thick coating of cement rough-cast. It is important that good mortar should be used. Inferior mortar is the cause of much trouble with rough-cast. Recent investigations go to show that the commonly adopted proportion of 3 to 1 for mortar does not give good results, particularly when the lime is measured after slaking. With the average materials a proportion of 2 to 1 would prove more satisfactory.

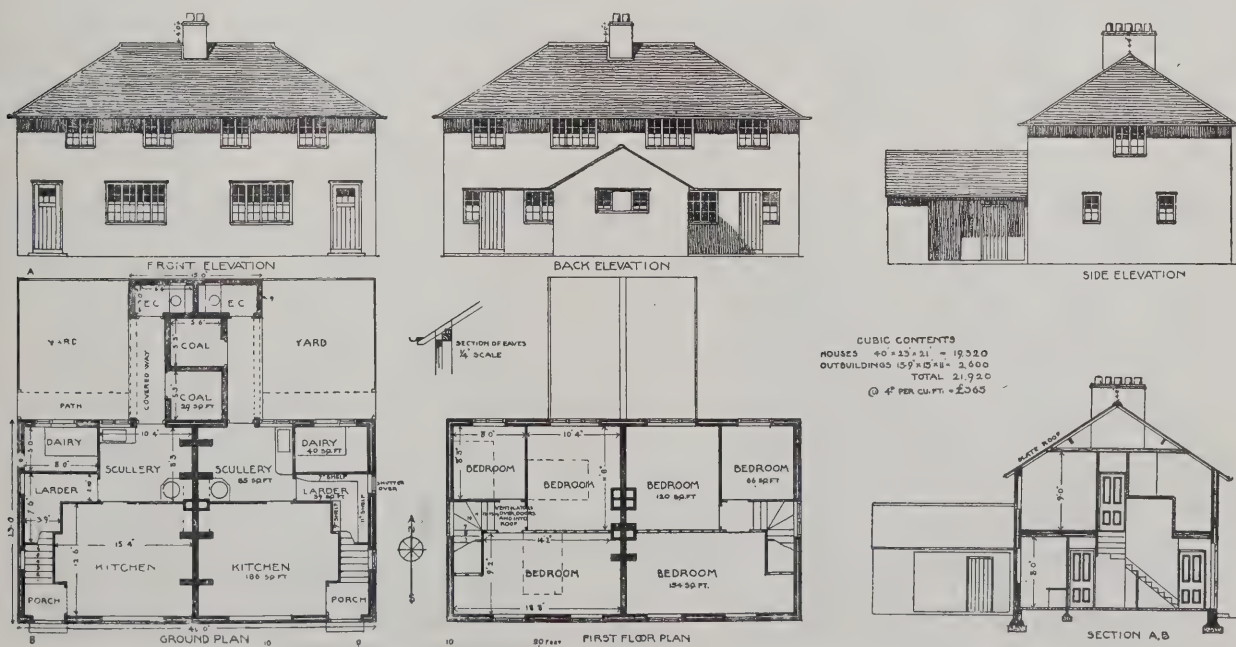
It is very common to see the damp course placed too low. It should never be less than 6 in. above the highest finished level of the ground.

Protection Against Weather.

The protection of walls by means of overhanging eaves offers great advantages. In the case of window openings, weak spots are particularly likely to occur at the joints between the brick wall and the wooden frames. Properly constructed string-courses and drip-courses across the base of a gable or over the heads of windows and doors afford considerable protection by throwing off the water and reducing the volume running down the surface of the wall or window. Proper weathering and throating, however, are essential. (See illustration on opposite page, E.) Where stone sills are considered too costly, an oak undersill with good projection is recommended in preference to brick on edge. A good drip under the sill may be made by using two courses of paving quarries laid to break joint at a sufficient slope, and projecting an inch or two beyond the face of the wall.

Roof-coverings.

The best roof-coverings to adopt depends upon the district, but tiles are preferable to slates. Over a large part of England one of the cheapest roof-coverings is provided by the old-fashioned pantiles, but they should be laid with a pitch of not less than 45 deg., and with a good lap. If not laid with mortar, however, tiles are apt to be stripped by wind, and will not effectually



(See next page.)

keep out driving rain and fine snow. The Norfolk system of lathing, which consists in laying three rows of plaster laths down each row of tiles, to hold the mortar upon which the tiles are then bedded, is a very effective way of making a good and secure pantile roof. Another way is to lay over the spars or rafters, before the tile laths are fixed, a covering of thin waterproof material, of which many kinds are now on the market. With this method the tiles may be bedded on each other with just sufficient mortar to keep them from moving. (See illustration on page 672, H.)

Windows.

The Yorkshire slide (see illustration page 672, B) is recommended as the simplest and least expensive form of window. If an oak sill is used, with oak pegs instead of an outside retaining fillet, durability is ensured. The casement window (A) comes next in the matter of simplicity, and a portion of the sash can be hung at the top, so as to open outwards and permit of ventilation if for any reason the casement must be kept closed.

Eaves Gutters.

The best form of eaves gutters is the thick cast-iron half-round 5-in. size, with strengthened edge. It should be carried on stout wrought irons screwed to the spars or rafters; or adjustable bearers make a good support and facilitate the provision of the even falls required to clear all the spouts of water. Eaves gutters in front of cart-sheds are easily injured, and in such a position the gutter may with advantage be set on a protecting board (F and G)—page 672.

Floors.

The question of the best flooring for the living-room is one of some difficulty. So far as the room serves the purposes of a workroom, there is no doubt that a tiled floor is the most satisfactory and the easiest to keep clean; but so far as the room is used as a sitting-room, there is the objection that a tiled floor is cold. A boarded floor may be provided, but in that case it will most likely be covered with linoleum by the occupier, and, apart from the expense involved, linoleum has a decided tendency to encourage dry rot when laid upon a new board floor. If such a floor is provided, exceptionally thorough ventilation underneath it should be secured. On the whole, a tiled floor in the living-room would seem best, but where there is local prejudice against a tiled floor probably the second best is an ordinary boarded floor with thorough ventilation underneath. Air-bricks on one side of a room only are not sufficient; ventilation may easily be secured under an adjacent solid floor by using a few field drain-pipes to connect with the air grid in the outer wall.

For the larder and dairy, and also for the scullery, a concrete floor will prove economical and satisfactory. In the parlour a boarded floor on joists will naturally be laid.

PAIR OF SMALL HOLDERS' HOUSES.

THE illustration on the preceding page shows a pair of small holders' houses embodying what the Departmental Committee consider to be the minimum amount of accommodation permissible where a dairy is necessary. If the dairy is not required, the space could be occupied by the fuel store, with the E.C. either adjoining or built detached. The larders, being east and west, should have shutters or other protection from the summer sun. As two bedrooms are on the north side, it would be an advantage that the aspect should not be due north and south. The houses are designed for a slate roof. They are planned as a pair with a view to economy.

IRISH LABOURERS' COTTAGES.

SOME remarkable results have been achieved in Ireland under the working of the Labourers Acts 1883-1911, many thousands of new cottages having been erected to displace the old insanitary cottages that were so unfit for human beings. The two photographs reproduced below illustrate, in a very striking way, the contrast between the new and the old. These photographs are taken from a report of a special committee of the National Housing and Town Planning Council, who visited Ireland in order to ascertain for themselves what was being done and thereafter to urge upon the Government the desirability of giving financial assistance to local authorities in England to enable them to build cottages for rural labourers in special areas and for the poorest in towns. The committee found that the new cottages in Ireland had effected a marked improvement in the habits and standards of life of the people. The cost of the cottages has ranged from £128 to about £200 each, apart from lands and roads. The majority of the cottages are detached and of the single-storey (or bungalow) type. A large living-room is provided, and part of this is often screened off by a wooden partition, from 7 ft. to 8 ft. high, to enable it to serve as an additional bedroom. There are two bedrooms, entered by doors out of the living room, so that the cottage may be regarded as one containing a living-room and three bedrooms. The architecture of the later cottages is on the whole not unpleasing.



The photograph on the left shows a condemned cottage at Lismore, while that on the right shows one of the new cottages erected under the terms of the Irish Labourers Acts.

THE OLD AND THE NEW COTTAGES OF IRELAND: A CONTRAST.



[Special Section.]

EVENTS OF THE YEAR.

An Illustrated Review of 1913.



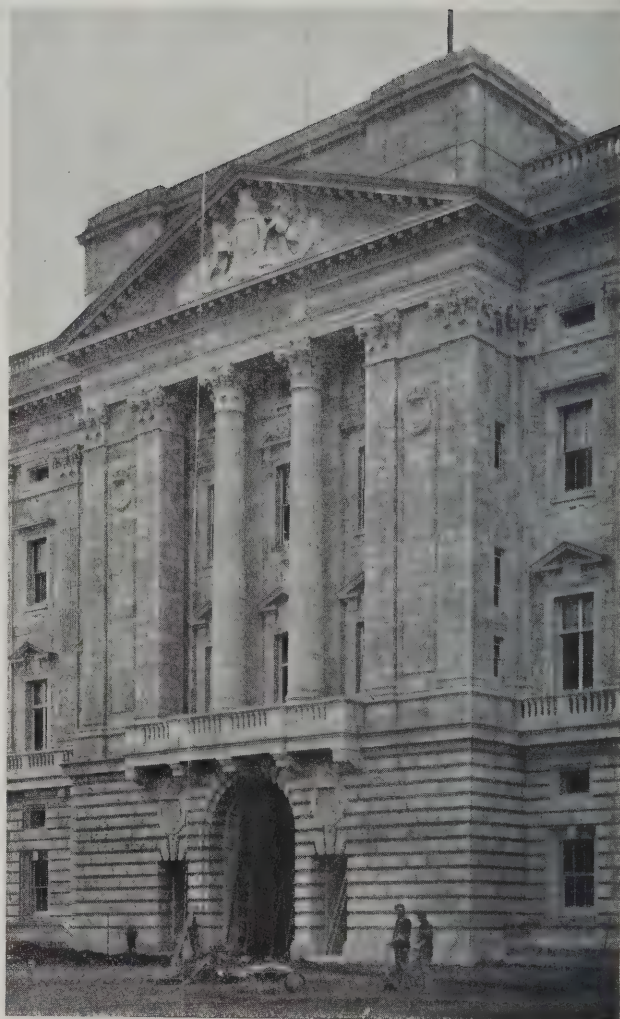
EVENTS OF THE YEAR.

The New Front of Buckingham Palace.

No building erected in London during the past year has had more public attention directed to it than the new façade of Buckingham Palace, completed to the design of Sir Aston Webb in November. There are many reasons for this. To begin with, a great deal was written in the newspapers about the old front by Blore, which, because of its quiet character, and particularly because of its dirty condition, served to provide that tag, "the ugliest palace in Europe," which might be counted upon to catch the public eye. There are some who think that if Blore's façade had been cleaned down and repainted, and certain of its sculptural adornments altered, a satisfactory result would have been attained at comparatively small cost. But the general prejudice against this façade was a very deep-rooted one, and so the final decision to sweep it away and substitute a new front in Portland stone is only what might have been expected. The new façade is, perhaps, the best thing that Sir Aston Webb has ever done. When, last spring, the perspective of the design was exhibited, the scheme, with its pedimented wings and string of pilasters between, offered little that was striking in the way of architectural design—it looked very much the kind of thing that had been done before, and done better; but the work as executed is a great improvement on the drawing. The large Corinthian columns in the centre feature and the end pavilions, with their rich capitals, have an admirable effect, and in their present state of immaculate cleanness are very attractive to the eye, while the pilasters do not show so prominently as they did in the perspective, but take their place far more appropriately as part of the wall surface. There are details about the façade which one may not like—for instance, the poor shape of the balusters, and the heads to the windows between the columns of the end pavilions; but, in spite of these points for criticism of detail, there is no questioning the fact that the general appearance of the façade is good; it observes the architectural proprieties, and has a stately look which is thoroughly in accord with its regal associations.

The Lumsden Judgment.

The legal decision given in the Lumsden case by Mr. Justice Horridge in the King's Bench Division on January 13 created much discussion, not only among



BUCKINGHAM PALACE: CENTRE PORTION OF
NEW FAÇADE.

builders, but in Parliament, where the judgment was debated at considerable length, a motion for revised legislation being lost.

The case concerned an assessment by the Commis-



NEW FAÇADE TO BUCKINGHAM PALACE. SIR ASTON WEBB, C.B., R.A., ARCHITECT.

sioners of Inland Revenue of increment duty under Sections 1 and 2 of the Finance Act, 1910. Mr. R. J. Lumsden, a Newcastle builder, had appealed to the Official Referee against an assessment of increment value duty amounting to £25 on an alleged gross increment of £125, on the occasion of the sale of a grocer's shop on a building estate, and the Official Referee had decided that no duty was payable. Certain points of law were reserved, however, and it was upon these that the case came before the High Court. Shortly, the Crown contended that the shop had been sold at an advantage to the builder, and that the excess was site value. On the other side it was contended that the site not having risen in value, no increment duty was payable, the profit being due to other causes than those contemplated by the Act, the intention of which was only to place a tax on land when there had been a real rise in its value. Judgment was given in favour of the Crown—that is, of the Commissioners of Inland Revenue—and against the decision of the Official Referee. From this judgment Mr. Lumsden appealed, but Mr. Justice Horridge's decision was upheld, and the appeal was dismissed. This created a great stir in the building industry, and, in the end, a Revenue Bill was introduced—and read a second time on July 29th—making provision for removing the apprehension occasioned by the decision in the Lumsden case.

The New Middlesex Guildhall.

The new buildings erected in the close vicinity of Westminster Abbey must necessarily attract a good deal of attention. This is particularly the case with the new Middlesex Guildhall, which was formally opened on December 19th by Prince Arthur of Connaught. Messrs. Gibson, Gordon, and Skipwith were the architects. Sculpture is used very extensively on the exterior of the building. Over the principal entrance, and extending on each side, is a frieze portraying three scenes of historical interest—

King John granting the Charter to the barons at Runnymede, King Henry III. granting a Charter to the Abbey of Westminster, and Lady Jane Grey accepting the Crown from the Duke of Northumberland. Within the building the principal features are the large entrance-hall, and, on the same floor, the two courts for the Middlesex Quarter Sessions, the larger one being 40 ft. by 36 ft. by 25 ft. in height. This court has a fan-vaulted roof, with the Royal Arms. Also on this floor are the committee-rooms for the use of the County Council, in most cases the walls being panelled and the ceilings treated with decorated plaster in low relief. On the second floor is the council chamber, 54 ft. by 36 ft. The roof of the council chamber has richly carved hammer-beam trusses. Mr. James Carmichael was the contractor. Expanded Metal lathing and plaster suspended ceilings have been adopted.

"Chartered Architects."

In December professional attention became centred on the Registration proposal by reason of the publication of the report and recommendations of the Council of the Institute in regard to the statutory registration of architects. As the president, Mr. Reginald Blomfield, observed, the question of registration "has hung over the Institute and divided its counsels for something like twenty-five years." The most anxious consideration has been devoted to the subject during that time, but without any acceptable solution being evolved. The year 1887 saw the first official attempt to grapple with the difficulty. In 1888, 1889, 1891, 1893, 1895, and 1900 Registration Bills were brought forward, only to be abandoned on the score of their being inadequate, unsatisfactory, and impracticable. Five years later, in 1905, a new Bill was prepared by the Council of the Institute. It, however, also contained provisions unacceptable in many quarters, and in consequence shared the fate of its predecessors. But under the presidency of the late Mr. John Belcher,



Photo: Topical.

THE NEW MIDDLESEX GUILDHALL, WESTMINSTER. GIBSON, GORDON, AND SKIPWITH, ARCHITECTS.

many eminent members of the profession, who had hitherto remained outside the Institute, largely because of its Registration policy, were persuaded to join that body on the understanding that the whole question of architectural education should be tackled afresh by the Institute before registration was again brought forward. This compromise was effected in 1907. From that time onwards the Council have sought to fulfil the conditions of the agreement, and the reforms introduced into the Institute's system of education are more than sufficient evidence of that fact. In 1909 a charter was obtained whereby a new class—that of Licentiates—was created. It was expressly stated in the charter that “a Licentiate shall not be a corporate member of the Royal Institute.” A year later, with a view to still further placating outside interests, and so reducing the amount of opposition to be anticipated in Parliament, proposals were made for the inclusion in the Institute of the members of the Society of Architects. These proposals when laid before the general body were referred back to the Council for further consideration. The Council at once appointed two committees—one to consider the best method of proceeding with Registration, the other to examine the constitutional aspect

of the question. All the allied societies were at the same time requested to express their opinions on the matter. The outcome is the present “report and recommendations of the Council.” Stated briefly, the proposal is to petition the Privy Council for a new charter, through which duly qualified architects would acquire the title of “Chartered Architects.”

*Norwich Union Insurance Co.'s New Premises,
Fleet Street, London.*

Within recent years practically the whole south side of Fleet Street has been rebuilt; and in consequence of the need for an increased width of roadway the new fronts have been set back some considerable distance from the old building line. A good deal of old work, mainly of the eighteenth century, has disappeared in the process, including the street front of Old Serjeants' Inn, on the site of which the imposing premises of the Norwich Union Insurance Co., designed by Messrs. Howell and Brooks, of London, have been erected. The old carriageway into the enclosure has been effectively incorporated in the new façade. Kleine fire-resisting floors were used throughout the building.



NEW PREMISES FOR THE NORWICH UNION INSURANCE COMPANY, FLEET STREET, LONDON.

HOWELL AND BROOKS, ARCHITECTS.

New Building for the Institution of Civil Engineers.

One of the most important buildings erected in London during the past year is the Institution of Civil Engineers' building in Westminster, completed in November. Mr. James Miller, A.R.S.A., F.R.I.B.A., was the architect. The main façade to Great George Street embraces a range of eight columns at first-floor level standing free from the wall surface (which is pierced with the tall windows of the main apartment at the front of the building), with a slightly projecting wing at either end, and a central doorway. The whole is executed in Portland stone. Sculpture is introduced here and there to add enrichment, there being over the doorway a spirited group, by Mr. Albert Hodge, of boy

figures representing "Science" and "Engineering," supporting a shield which bears the arms of the Institution, while in the window recesses of the wings are symbolical representations of the prow of a ship and the front of a chariot, with associated emblems. Within the building the interest centres mainly on the ground floor and the first floor. The former comprises a large entrance hall, centrally placed, off which the offices, the reading-rooms, and the council and committee-rooms are entered. On the first floor the main space is taken by a palatial suite of apartments, comprising the lecture theatre, the great hall, and the library. The chief rooms off the entrance-hall are to the right. There is first, on the north side, the large reading-room, about



NEW BUILDING FOR INSTITUTION OF CIVIL ENGINEERS, GREAT GEORGE STREET, WESTMINSTER
JAMES MILLER, A.R.S.A., F.R.I.B.A., ARCHITECT.

68 ft. by 28 ft., with walnut-panelled walls and two chimneypieces whereon the skill of the carver is well displayed. Adjoining is a similar apartment, intended for members who are non-smokers. Next to the latter room is the council-room, with a committee-room leading out of it, and a small hall convenient to both, communicating with the subsidiary exit in Princes Street. The council-room is panelled the full height in oak, its wall surface being broken up by pilasters, and its chimneypiece embellished with a portrait of Sir

6 in. in width. The bookcases are arranged between piers along each side, and on the inner wall is a gallery to the upper tiers of books. The woodwork here is largely taken from the Institution's former building. The lecture theatre is practically the same size as the corresponding room in the old building. It is well adapted to its purposes, and has an admirable dome light in the centre. From the lecture theatre we may pass to the great hall—the most striking apartment in the building. It is 100 ft. long by 45 ft. wide, and is



CIVIL ENGINEERS' BUILDING, WESTMINSTER: VIEW IN GREAT HALL.

JAMES MILLER, A.R.S.A., F.R.I.B.A., ARCHITECT.

William White. The grand staircase rises in broad flights to the first-floor hall, which is crowned by a glass dome. A corridor extends around the staircase, from which access is gained to the three main rooms on this floor—the library on the north front, the lecture theatre on the south side, and the great hall on the west side. The library is no less than 158 ft. in length by 28 ft.

extremely rich in appearance, having marble pilasters with bronzed capitals and marble surrounds to the doorways, further embellishment being given by modelled groups over the latter and by elaborate plasterwork on the ceiling. The general appearance of this hall is magnificent, in which respect it admirably fulfils its requirements, being intended for use in con-

nection with all large gatherings. Of the accommodation on the other floors, it may be stated briefly that there is another library on the second floor, with writing and smoking-rooms, while balconies at this level overlooking the central hall enable a most attractive survey to be obtained. The general contractors for the building were Messrs. John Mowlem and Co., Ltd. The steelwork and fire-resisting floors were carried out by Archibald Dawnay and Sons, Ltd.; plumbing by Matthew Hall and Co.; sanitary fittings by Doulton and Co., Ltd.; plasterwork by George Rome and Co., G. and A. Brown, Ltd., and the Bromsgrove Guild; stone carving by W. S. Frith and H. H.

Martyn and Co.; iron and bronze balustrades by N. F. Ramsay and Co.; patent glazing by W. E. Rendle and Co.; casements by Henry Hope and Sons, Ltd.; Copperlite glazing to doors by Hayward Bros. and Eckstein; decorative marble work by Walton, Goody, and Cripps, Ltd; lifts by Smith, Major, and Stevens, Ltd.; bronze capitals and bases in great hall by the Elbron Metallising Co.; electric-light fittings by F. and C. Osler, Ltd., and the Bromsgrove Guild; furnishing by Maple and Co., Waring and Gillow, and Marsh, Jones, and Cribb. Expanded steel-concrete encasing to the structural steelwork was used, and Expanded Metal lathing and plaster suspended ceilings.



CIVIL ENGINEERS' BUILDING, WESTMINSTER: VIEW OVERLOOKING GRAND STAIRCASE.

JAMES MILLER, A.R.S.A., F.R.I.B.A., ARCHITECT.

The New King's College Hospital.

On July 26th last His Majesty King George V., with Queen Mary, inaugurated the new King's College Hospital, which has been erected on a fine site at Denmark Hill from designs by Mr. William A. Pite, F.R.I.B.A., selected in competition. The site is practically a parallelogram. Facing north, on the front to Bessemer Road, is the administration block, centrally placed, with the casualty and out-patient departments on one side and the medical school on the other. Behind runs the main corridor of the hospital, nearly 900 ft. in length, off which the eight ward blocks project to the south, where they overlook the pleasant expanse of Ruskin Park; the chapel being placed in the centre of the range, the operating theatres on the north-west side, and a special ward block terminating the corridor at its western end. One of the many features of the institution is the treatment of the casualty and out-patient departments, which are so arranged that patients circulate through the block without causing confusion, while special facilities are afforded for the treatment of doubtful cases. Thus, in the out-patient department, patients pass through to a large waiting-hall (capable of seating 500 people, for whose convenience a central buffet is installed where refreshments can be obtained), thence into the corridor that leads to the consulting-rooms, afterwards into the dispensary, and so outside. In this way, after having seen the doctor and received treatment or medicine, they do not retrace their steps, thus enabling the work

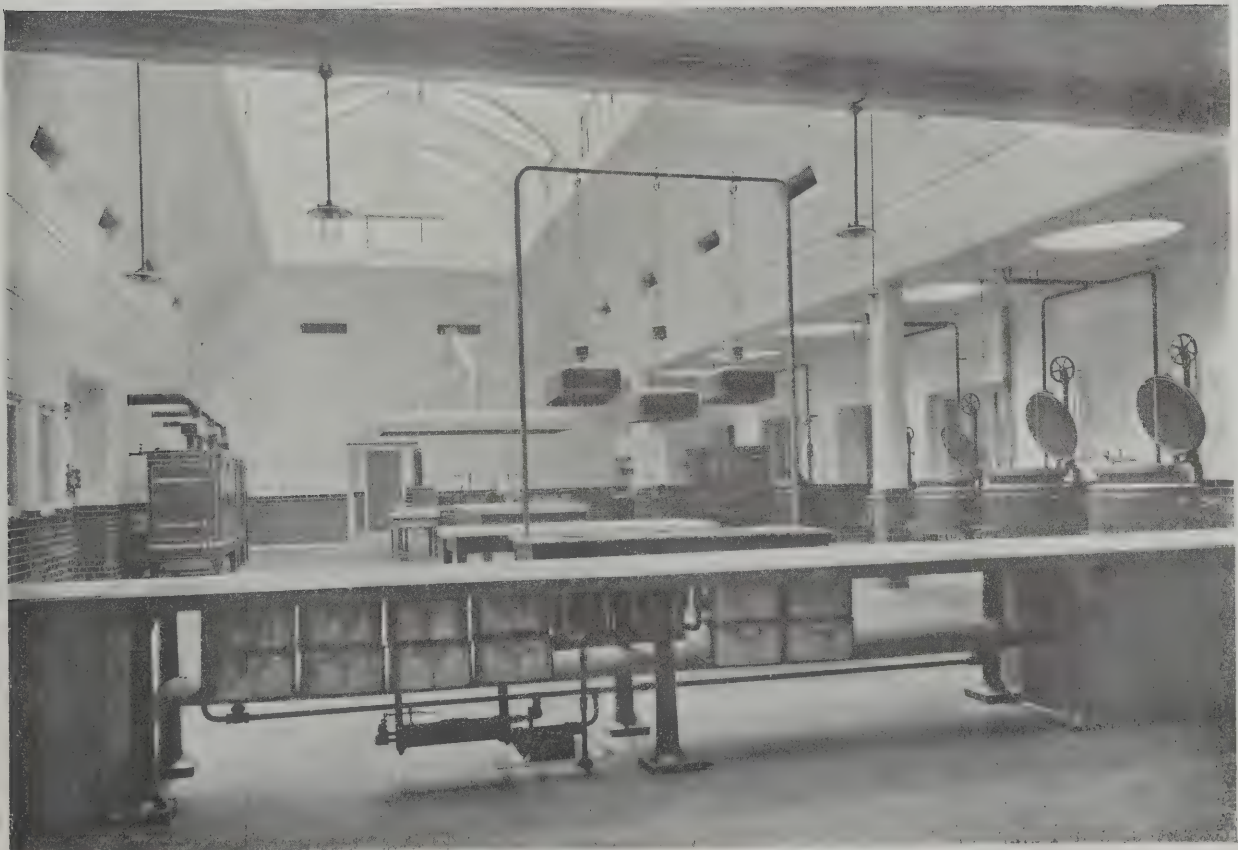
of the hospital to go on without disturbance. The main wards are extremely cheerful in appearance and most convenient in their working arrangements. Of the eight ward blocks projected in the scheme, five are now complete. Each ward accommodates twenty-four beds. The total number of beds provided under the present scheme is 320, contained in twelve wards and four special wards, but when the additional blocks are erected there will be accommodation for 600 beds. Though the major part of the hospital is now in use, the out-patient department having been opened on November 10th last, building work is still proceeding, chiefly on the medical school block, the special ward block, and part of the isolation block. Building operations were commenced in 1908, the contractors being Messrs. Foster and Dicksee, of Rugby. A very large contract was carried out by James Slater and Co., who were responsible for the heating and ventilation, hot-water supply, steam cooking plant, and steam boilers. Lifts were installed by The Otis Elevator Company, Ltd. The plumbing work was executed by Matthew Hall and Co. and Doulton and Co., which latter firm supplied the sanitary fittings. Glazed bricks and Snepwood partition bricks were supplied by the Leeds Fireclay Company; daylight prisms by the British Luxfer Prism Syndicate and J. A. King and Co.; electric-light fittings by Duncan, Watson, and Co., Edmundson's, Ltd., and F. and C. Osler, Ltd.; electroliers by Faraday and Son; plastic flooring (including operating theatres, with



THE NEW KING'S COLLEGE HOSPITAL, DENMARK HILL, LONDON, S.E.: ADMINISTRATION BLOCK.
WILLIAM A. PITE, F.R.I.B.A., ARCHITECT.



One of the Wards.



The Kitchen.

KING'S COLLEGE HOSPITAL, DENMARK HILL, LONDON, S.E.
WILLIAM A. PITE, F.R.I.B.A., ARCHITECT.



KING'S COLLEGE HOSPITAL: OUTPATIENTS' WAITING HALL.

WILLIAM A. PITE, F.R.I.B.A., ARCHITECT.

floors, walls, and ceilings arranged for panel heating) by the Durato Asbestos Flooring Company; wood-block flooring by Fenning and Co.; floor polishing by Ronuk, Ltd.; terrazzo floors, Diespeker, Ltd.; grates and chimneypieces by the Carron Company, the Teale Fireplace Company, and Thomas Elsley, Ltd.; trolley castor beds and furniture for ward-rooms by Hampton and Sons, Ltd.; "Paripan" enamel by Randall Bros.; hospital doors (700 in number) by the Gilmour Door Company; granite silicon plaster by the Granite Silicon Plaster Company; fire appliances by Merryweather and Co., Ltd. Marble-work in the chapel was executed by Anselm Odling and Sons, Ltd., and two large lead coats-of-arms on the out-patient block were executed by the Bromsgrove Guild. Pavement lights and fire-escape staircases were supplied by Hayward Bros. and Eckstein, Ltd. The consulting engineer was Professor D. S. Capper, M.I.C.E.

The Peace Palace at The Hague.

The building for the Peace Palace at The Hague was completed by the summer, and formally opened. Considering it as a pure design for a modern building in the air, apart from any definite object, it will sustain no serious scrutiny. The attempted blending of Gothic and Renaissance features, done unconsciously in the François Premier and Elizabethan periods, and self-consciously revived last century, is, one would have thought, by this time exploded as means of expressing modernity or originality in architecture; and one would least expect to find so transient and ephemeral a phase selected for the style of a building which is intended to symbolise the permanence of universal peace. Regret is the more acute when one imagines what glory on any city a Palace of Peace might confer, and how harmonious with the character of The Hague might have been a simple horizontal mass, seen, like the Moritzhouse, across a broad lagoon, framed in with trees, and built, like the Royal Palace, in a single

material of ivory-white colour (in place of the present glaring tricolour). But an international competition in which no fewer than 217 architects took part has resulted otherwise.

The Electric Lighting of Westminster Abbey.

At Westminster Abbey a notable event was the installation of an electric-lighting system. The proposal to instal such a system came under consideration at the time of the Coronation of King Edward VII., in 1902, when, for the purpose of the ceremony, the daïs, the altar, and the temporary structures were electrically illuminated. Similar arrangements were made for the Coronation of King George V., in 1911, and the Dean and Chapter subsequently decided that the moment was appropriate for putting in a permanent electric installation. With this object in view, the Office of Works undertook to leave in the Abbey the main switchboard, the cables, and the sixteen electroliers in the nave, which had already been provided for the Coronation lighting. The temporary structures, erected for the purpose of the Coronation, having been removed, Mr. Samuel W. Maddick, one of the Office of Works electrical engineers, was transferred, together with a few of the workmen, to the Dean and Chapter, in order to complete the general lighting of the Abbey. The work presented many extremely difficult problems. The primary and inflexible condition upon which it was allowed to proceed was that no damage should be done to the structure, and, after a thorough inspection of the whole installation, it must be admitted that this condition has been scrupulously observed. Nothing has been done that could in any way provoke criticism, much less the charge of vandalism, which is quite commonly made whenever alterations of any kind are introduced into old buildings. Every possible care and precaution has been taken to make the installation thoroughly safe, sound, and efficient, and a number of interesting devices have been introduced in order to avoid undue interference with the fabric and the internal fixtures.

The Ancient Monuments Act.

A very important Act affecting architectural monuments—Lord Beauchamp's Ancient Monuments Act—reached the Statute Book by the end of the summer. It authorises the purchase of monuments either by the Commissioners of Works or by the council of any county or borough, or the Common Council of the City of London; but such a purchase can be carried out only by agreement with the owner. The gift or demise of a monument to the same bodies is also authorised. The alternative machinery of guardianship is then provided, as in the existing Acts, and the effect of guardianship is explained. By constituting the Commissioners of Works or the local authority guardians of his monument, the owner does not divest himself of any right of property except that of destruction, active or passive; in other words, the guardians of the monument may restrain the owner from injuring it, and may, concurrently with the owner, do any work necessary to maintain and protect it. An Ancient Monuments Board, representative of the three Historic Monument Commissions, the Societies of Antiquaries of London and Scotland, and other artistic bodies, is to be constituted by the Commissioners of Works, and upon their report that any monument is in danger of destruction, removal, or damage, and that the preservation of the monument is of national importance, the Commissioners may make a preservation order, placing the monument under their protection, and while such an order is in force the monument cannot be demolished, removed, added to, or altered without the consent of the Commissioners. Moreover, if pending a preservation order, it appears likely that the monument will, from the neglect of the owner, fall into decay, the Commissioners may, with the consent of the Treasury, constitute themselves guardians, and may then execute preservative works. The Ancient Monuments Board are authorised to inspect any monument which they believe to be in danger; and in a case of urgency the Commissioners of Works may make a preservation order on their own initiative, without waiting for the Board's advice. A preservation order is only a temporary measure. It has effect for eighteen months; after that time it ceases to operate, unless confirmed by Parliament. The Commissioners of Works may bring in a Bill to confirm the order, and this Bill may, if opposed by the owner, be referred to a Select Committee after the manner of a private Bill. The Commissioners of Works are, after notice to the owners, to prepare and publish a list of monuments of national importance, and when a monument is included in this list the owner must, under a penalty, give a month's notice to the Commissioners of any proposed work of demolition, removal, alteration, or addition.

Restoration Work at the Tower of London.

During the course of the year extensive works of restoration were carried out at the Tower of London by the Office of Works. The decayed face of various parts of the walls and towers necessitated immediate attention, and repairs to the most seriously dilapidated sections have now been made. It was the constant aim of the staff of the Office of Works not merely to safeguard the ancient buildings from further decay, but to use every care to preserve their character and to harmonise necessary modern constructions with the original work. Not all their predecessors have been so scrupulous. During the last century many of the finest parts of the Tower were defaced with a coating of cement interspersed with flints. This was presumably done in order to keep out wind and weather from the decayed walls at little expense, but the eventual result has been to increase the insecurity of the buildings, while giving them a singularly shabby and unworthy appearance. The work of removing this flint plaster and refacing the walls with secure and suit-

able masonry has so far been chiefly carried out on the Byward Tower, on the Postern Gate Tower, which forms part of it and guards the narrow bridge giving access to Tower Wharf and the river, and on the Martin Tower, which stands at the north-east angle of the inner wall. The cement was in many places perishing, and the embedded flints imperilled passers-by. On the upper part of the Postern Gate Tower a thin facing was hanging out from the main surface of the wall to a distance in many places of 4 in., and was thus extremely dangerous. After the plaster was removed it became necessary to repair the masonry effectively, and this difficult work was conducted with great judgment and success.

Stafford House.

Considerable interest this year has been centred on Stafford House, which was purchased from the Duke of Sutherland by Sir William Lever and presented to the nation as a permanent home for the London Museum. The building stands on an area of ground between St. James's Palace and the Green Park, and was designed originally by Benjamin Wyatt for the Duke of York, who died before the completion of the work, when the building was bought by the Government for £82,000. Shortly afterwards it was actually offered to and accepted by the Royal Society, who, however, subsequently abandoned the idea of making the building their home, on account, it has been stated, of the increased expenditure involved and the general unsuitability of the accommodation provided. The house, together with its gardens, was sold in 1827 to the Marquis of Stafford for £72,000 on a ninety-nine years' lease, of which thirteen only remain to run, when the building will revert to the Crown. Under the direction of the Marquis of Stafford the house was completed from the designs of Wyatt and Barry, who added two storeys to its height (the top one of which is concealed by a high stone balustrade) and carried out a gorgeous scheme of internal decoration. The interior is now being made ready to receive the London Museum exhibits.



STAFFORD HOUSE: ENTRANCE PORTICO.

Colnaghi and Obach's New Galleries.

In the West End of London no more elegant building has been erected during the year than the new premises for Messrs. Colnaghi and Obach, at Nos. 144-146, New Bond Street, the architects of which were Messrs. Lanchester and Rickards, F.F.R.I.B.A. The requirements of Messrs. Colnaghi and Obach extended chiefly to the basement, ground and first floors, which are appropriated to their express uses, the floors above being let out as offices. The treatment of the exterior offers one further example of the

individual style which Messrs. Lanchester and Rickards have made their own. One cannot say that it follows any single style of the past, being rather an original product evolved from the study of many styles, with perhaps the Baroque of Vienna preponderating. Centrally placed on the façade is an admirable figure of "Painting," carried out in Portland stone by Mr. Henry Poole. Within the building on the ground floor, is a long entrance hall, finely panelled out with walnut. Here Mr. Rickards has found adequate opportunity for exerting his resources in design.



LOWER PORTION OF FAÇADE, Nos. 144-146, NEW BOND STREET, LONDON.
LANCHESTER AND RICKARDS, F.F.R.I.B.A., ARCHITECTS.

Rooms for the exhibition of pictures are provided to the left of the hall, and at the end is a larger gallery. On the first floor there are two or three rooms of much interest; in particular the library and a "Georgian" room, in which old mezzotints and colour prints are shown. The general contractors were Messrs. Foster and Dicksee. The art metalwork and electric-light fittings were executed by J. W. Singer and Sons and Strode and Co.; the plasterwork and woodcarving by H. H. Martyn and Co.; and the grates by the Carron Company.

The Rival Sites for London University.

Choice of a site for London University remains an open question. Lord Haldane, it appears, had set his heart on the site on the Bedford estate, behind the British Museum; but the price put upon it is about three times as much as that arrived at in a valuation made by the London County Council. No doubt largely influenced by this reason, the Senate resolved to reject the Bedford site, and, by a small majority, recommended the site of the Foundling Hospital. No fewer than four sites had been considered, when the London County Council suggested a fifth. The four were:—(1) The Imperial Institute, where the University is at present precariously lodged; (2) the site adjoining the British Museum; (3) the Foundling Hospital; and (4) the site adjoining the new London County Hall. The Education Committee of the London County Council then suggested that Somerset House should be the home of the University; and when the Council Committee met in conference the Site and Accommodation Committee of the Senate of the University, no opinion adverse to Somerset House was expressed. Instead of seizing with joy and courage so splendid an opportunity of aggrandising London, and of advancing education, the Education Committee have attempted to solve the problem by mere adroitness, and are pluming themselves upon the performance. They harp on cheapness and on convenient access as if these were vital matters, whereas neither point is worth a moment's consideration. If London cannot for the moment afford to erect and endow a rationally conceived university, it had better wait a little longer. Somerset House, of which the first stone was laid in 1776, is not only the finest work of Sir William Chambers, but a unique monument to the particular phase of architectural development which its style represents. Its interior has suffered many vicissitudes, and we do not share the alarm that has been expressed with respect to the results of further drastic changes: but a worse fate would be the moral deterioration it would suffer in being contemptuously regarded as a makeshift university and as a monument to a mean and inglorious misconception of educational ideals.

The Canberra Competition.

The creation of a commonwealth capital city is not an enterprise that should be undertaken with a light heart—nor with a light purse. Really the Australian Government has acted throughout with extraordinary ineptitude, even for a Government. It deliberately deprived itself of the best architectural advice, and denied itself the advantage of obtaining designs from the organised architects of the world simply because it was too stiffnecked to recede from a false position. Then, from the painfully narrowed field of choice, it had perforce to accept the work of outsiders—that is, of men who, by reason of their nationality, were outside the Empire. As a matter of art, this is no great disaster; but as a matter of sentiment it carries with it a considerable degree of poignancy. The affair went from bad to worse when an attempt was made to pick out for use the best features of what a lay writer calls the "premeditated" designs. One hardly knows how to characterise such procedure. The kindest thing that can be said about it is that from first to last the whole thing has been badly bungled.

Of course, the attempt by the Home Affairs Department to devise a scheme of their own, made up of "points" from the premiated designs, was foredoomed to produce a sorry hotchpotch. Equally of course this miserable result has provoked a storm of adverse criticism. Having brought matters to this pretty pass, the Government at length invited Mr. W. B. Griffin, the Chicago architect who got £1,750 for the first-premiated design, to go to Australia to help them out of the trouble. And his was by no means an enviable task. The story of the competition for the Federal Capital of Australia is, in fact, rather melancholy reading. When the conditions were issued the Royal Institute of British Architects and the American Institute of Architects promptly protested against the clause dealing with the assessors. No attention being paid to these protests, both Institutes formally requested their members to refrain from competing. Here, then, was a most regrettable beginning; the Commonwealth of Australia promoting a competition for its capital, and the two countries whose architects were most likely to understand her needs being practically forbidden to compete: if an Australian did not win, who more fitting than an Englishman, who would probably settle there and add the value of his personality to the younger country? Again, the Americans are admittedly ahead of us in the study of monumental town planning, and no one could have felt anything but satisfaction if one of her many brilliant city planners had succeeded, so similar in many respects



NEW BUILDING, Nos. 144-146, NEW BOND STREET, LONDON.
LANCHESTER AND RICKARDS, F.F.R.I.B.A., ARCHITECTS.

are the United States to Australia. We pass over the more narrow imperial side of the question, as our sympathies in architecture are entirely cosmopolitan, and it matters little to us whether the author of the plan for one of our colonial capitals be of French, German, or of English-speaking race, provided the plan be a fine one; but we do regret that the ill-advised stubbornness of Australia should have denied itself the best brains of the latter. In point of fact an American did win the competition, the second and third premiums going to a Finn and a Frenchman. The winning design by Mr. Walter Burley Griffin, of Chicago, produced singularly little critical analysis from the English Press, with one notable exception, in which the critic, considering the design on a high plane, found fault with two points—the direction of its main axis and the formation of a chain of lakes in the centre of the city. Still, it was evident that the author, particularly in the direction of monumental grouping, had considerable powers, and, although the competition had been mismanaged, there was a prospect of the final result turning out better than was expected, the assessors having stumbled on a design which, though full of faults, was the work of a young man of ability. The latest development dispels any such prospect: the Australian authorities having become possessed by means of the premiums of the first designs, and having purchased another by a local architect, considered that it was only necessary to hand them over to a Departmental Board with full powers to do what they liked with them. The Departmental Board has produced a report, a plan, and a perspective view, after “having settled certain governing principles” and pursued “its deliberations at the site of the seat of Government, where the designs which won the first, second, and third prizes, and the design purchased by the Minister, received consideration, having regard to the requirements of the

city and the configuration of the site, together with local and general conditions.” Looking at these three productions we are at a loss to say which astonishes us most—the naïveté of the Report, the badness of the plan, or the pitiful conception of what a capital should be as evidenced by the perspective. We need only quote one paragraph from the Report: “The Board was unable to recommend the adoption of any one of the designs. The Board advises the approval of the plan for the layout of the city as prepared by itself. This plan incorporates such features from the premiated and purchased designs as, in the opinion of the Board, are warranted.” The result, in the plan which has been finally decided upon, is only what might have been expected. The direction of the main axis and the chain of lakes (the two features adversely criticised) they have lifted from Mr. Griffin's design, but in doing so they have traduced his water treatment and lost whatever qualities his features possessed. The plan appears to acknowledge but one principle of town design, that of dotting every rising point of ground with a building, but without any thought of logical grouping. Thus the cathedral jostles the capitol, a police barracks shadows a school, and an orphanage is associated with the mint. Around the railway station, whose wrong axis has to be laboriously corrected, are grouped a library, post office, opera house, bank, and museum. Our readers can judge for themselves the effect of the backs of a training college and technical school as seen from the capitol, and the astonishing shapes which a never failing ingenuity has been able to devise for sites. The road plotting is too grotesque for serious criticism.

Thus, it will be readily appreciated how disappointing has been the outcome of this important competition, which, had it been properly conducted, should have produced a really fine design for the new capital of Australia. A great opportunity has here been missed.



COLNAGHI'S AND OBACH'S GALLERIES, NEW BOND STREET, LONDON: ENTRANCE HALL.

LANCHESTER AND RICKARDS, F.F.R.I.B.A., ARCHITECTS.

The London Atelier.

The first architectural atelier in London has firmly established itself during the past year at 16, Wells Mews, W. The Patrons, Mr. Charles Mewès, Mr. Arthur Davis, and Mr. J. P. C. Chaurès, are all Beaux-Arts men, but no attempt is made to introduce French designs or details. On the contrary, the student is encouraged to develop his own ideas with the help and co-operation of the patrons and atelier comrades, who assist him to lift his work to the highest possible level. A band of enthusiastic students have created a fine spirit of camaraderie, and have assimilated this most essential feature of a Paris atelier. The atelier is always open, and its internal control is in the hands of the Students' Committee, consisting of Messrs. Adrian Berrington, L. E. Carreras, W. G. Newton, A.R.I.B.A., L. S. Sylvester Sullivan, A.R.I.B.A., C. Spencer Willmott (librarian), and L. H. Bucknell, A.R.I.B.A. (massier). The entrance fee for students is one guinea, and a monthly subscription of 30s. is payable when taking part in a competition.

A Town-Planning Institute.

A Town Planning Institute has been formed with the object of "advancing the study of town planning and civic design, promoting the artistic and scientific development of towns and cities, and securing the

association of those engaged or interested in the practice of town planning." The majority of those constituting the new institute are architects, engineers, or surveyors practically engaged in town planning, but associate and honorary members, consisting of persons who have taken a special interest in town planning, will be accepted. The first council consists of Professor Adshead, Messrs. H. V. Lanchester, P. T. Runtun, Raymond Unwin, J. A. Brodie, J. W. Cockrill, W. T. Lancashire, H. E. Stilgoe, Thomas Adams, G. L. Pepler, W. R. Davidge, J. S. Birkett, and E. R. K. Abbott. Mr. J. Burns, Sir J. Wolfe Barry, Sir Alex. R. Stenning, and Sir Aston Webb are to be asked to become vice-presidents. Among the hon. members are Lord Lytton, Lord Plymouth, Mr. J. W. Whitley, M.P., Mr. Ebenezer Howard, and Mr. H. Vivian.

The New Theatre, Manchester.

Early in the year the New Theatre was completed at Manchester, Messrs. Horace Farquharson and Richardson and Gill being the associated architects. The house provides accommodation for about 2,700 people, all of whom have an uninterrupted view of the stage. The interior possesses a fine impressive scale, the chief dimensions being as follows:—The height from the ground-floor level to the middle of the curved and coffered roof is 80 ft., the proscenium opening being about 36 ft. wide and 37 ft. high. The fine panel



THE NEW THEATRE, MANCHESTER.

H. FARQUHARSON AND RICHARDSON & GILL, ASSOCIATED ARCHITECTS.

in the tympanum over the proscenium is 28 ft. wide by 10 ft. high. Public safety and convenience have been carefully ensured. The theatre, which is wholly of fireproof construction, can be emptied within two minutes, all staircases communicating direct with the street. The total cost of the building was £34,000. The general contractors were Messrs. Ernest Hawkins and Co. Messrs. John Tanner and Son carried out the whole of the internal decorative plasterwork.

The Building Trades Exhibition.

The fifth biennial Building Trades Exhibition was opened at Olympia by the Lord Mayor of London, Sir David Burnett, on April 12th. As on former occasions, it was of a most comprehensive character, the exhibits ranging "from the drains in the basement to the chimneys on the roof," to use Mr. Montgomery's own expressive phrase.

The L.C.C. and Reinforced Concrete Construction.

The London County Council Building Acts Committee have presented to the Council the revised draft of the new regulations with respect to reinforced

concrete construction, and these regulations were to be submitted for the approval of the Local Government Board, who will fix a date upon which they shall come into force. Notice of this intention to apply to the Board was to be given to the Royal Institute of British Architects, the Surveyors' Institution, the Institution of Civil Engineers, and the Concrete Institute. It was stated that the alterations made by the Local Government Board "render the regulations somewhat more onerous than those originally adopted by the Council."

The London County Council, under their General Powers Act of 1909, were authorised to make regulations for the construction of buildings wholly or partly of reinforced concrete. As the scope of that Act, in so far as it affected the London Building Acts, was confined to buildings which were permitted to enjoy the privilege of thinner walls by virtue of being constructed as steel frames, it was obviously the intention of the Act to allow the Council to define the essential details of a similar framework in reinforced concrete, instead of meta such as would



THE NEW THEATRE, MANCHESTER: UPPER PORTION OF PROSCENIUM AND CEILING.
H. FARQUHARSON AND RICHARDSON AND GILL, ASSOCIATED ARCHITECTS.

enable a similar relaxation to be permitted in wall thicknesses. Fortunately, or otherwise, no such limitation is stated in the clause authorising the Council to draw up regulations; and, having regard to this omission, it would appear that the Council are legally empowered, if they think fit, to regulate all kinds of reinforced work within the area of their jurisdiction.

Memorial to Mr. Norman Shaw.

The Executive Committee of the Norman Shaw Memorial Fund (comprising the Earl of Plymouth, Sir Edward J. Poynter, R.A., Sir Thomas G. Jackson, R.A., Sir Aston Webb, C.V.O., C.B., R.A., F.R.I.B.A., Mr. Reginald Blomfield, A.R.A., P.R.I.B.A., and Mr. Fred A. White) have invited subscriptions for a memorial to the late Norman Shaw. They observe: "Mr. Norman Shaw's reputation is too world-wide for it to be necessary to do more than recall the fact that England abounds with works of his whose place is second to none in the architectural achievements of the nineteenth century. But not only as an architect and artist will Mr. Shaw's memory live in the recollection of those who knew him and be bequeathed to generations to come. . . . It is admitted that on very many grounds a memorial seems to be due to him, and it is proposed that it take the form of a portrait bust with a suitable inscription, to be placed in front of his great

building at New Scotland Yard, facing the Thames Embankment. It is hoped that it will be designed by Professor W. R. Lethaby, one of Mr. Shaw's pupils, and that the sculpture will be executed by Mr. Hamo Thornycroft, R.A."

The Woolworth Building.

No more remarkable building has been erected during the year than the Woolworth Building in New York. Mr. Cass Gilbert was the architect. This is now the highest building in the world, the total height from pavement level being 775 ft. There are fifty-five storeys. The cost has been stated to be £2,000,000.

British Museum Extension.

Though work within the building is still proceeding, more particularly in respect of cases and other fittings, the new addition on the north side of the British Museum has now been completed, to the design of Mr. John J. Burnet, LL.D., A.R.S.A. It embraces a long gallery on the ground floor for various kinds of exhibits, a main gallery on the first floor, 380 ft. in length, for the exhibition of Egyptian and other collections, and a new print room on to the top floor. The façade is carried out entirely in Portland stone, with an enriched lead cresting. Messrs. Blake are the general contractors. Expanded steel-concrete has been used for flooring, roofing, and stairs, with Expanded Metal lathing and plaster suspended ceilings, beams, etc., throughout.



THE WOOLWORTH BUILDING, NEW YORK.

CASS GILBERT, ARCHITECT.



BRITISH MUSEUM EXTENSION: THE NEW NORTH FAÇADE.
JOHN J. BURNET, LL.D., A.R.S.A., ARCHITECT.



NEW PREMISES FOR MESSRS. BURBERRYS, HAYMARKET, LONDON.
WALTER CAVE, F.R.I.B.A., ARCHITECT.

was completed for Messrs. Burberrys, in the Haymarket, from the designs of Mr. Walter Cave, F.R.I.B.A. It is constructed throughout of steel and faced with Portland stone, the rear walls being finished with white glazed bricks. The floors are of reinforced concrete. Expanded steel-concrete casing, supplied by the Expanded Metal Co., Ltd., was used in connection with the structural steel-work. The general contractors were Messrs. Prestige and Co., Ltd.

The Report on Regent Street Quadrant.

The report of the Committee which was appointed by the Government in September, 1912, "to consider the design for completing the rebuilding of the Quadrant, Regent Street, 'due regard being had to (a) æsthetic considerations, (b) commercial requirements, and (c) the interests of the Land Revenues of the Crown,'" was issued, over the signatures of the Earl of Plymouth, Sir Henry Tanner, Professor Reginald Blomfield, and Mr. John Murray. Its main recommendation was that Norman Shaw's Piccadilly Hotel façade to the Quadrant should be left as it is, and lower wings built on either side. Considerable discussion followed on this proposal, and nothing definite appears yet to have been settled. Meanwhile, the rebuildings in the thoroughfare continue to proceed in the most haphazard style, so that all sense of regularity seems lost for ever.

Attention has been drawn by Mr. Percy W. Lovell, secretary of the London Society, to a new and somewhat disconcerting phase of the Regent's Quadrant muddle. Apparently the Government are about to repeat precisely the same mistake that the London County Council perpetrated with respect to Aldwych. The Council had not sufficient courage to adhere to the general scheme for Aldwych to which originally they required architects to conform. Finding considerable difficulty in obtaining tenants who would consent to that scheme, the Council at length abandoned it at

discretion, leaving the tenants' architects almost a free hand in the matter of design, with miscellaneous results that, while—if we regard each building as an independent entity, they are certainly on the whole much better than might have been anticipated from such a vacillating policy—are nevertheless so many testimonies to the invertebracy of the controlling powers, who timorously muddled the finest town-planning opportunity that London has had since the Great Fire. Similarly the Government, weakly yielding to clamour, have thrown over Mr. Norman Shaw's design, and can make no better use of the Quadrant Committee's suggested modification of that scheme than to announce that any of the leaseholders' architects are at liberty to present plans for rebuilding, and that such plans will be considered if they agree with the Committee's suggestions! This is virtually to abandon all architectural control, as it allows the leaseholders' architects to do as they like, provided they keep to the prescribed dimensions. The proper course was to draw up a comprehensive scheme showing the intentions of the Committee as interpreted by competent architects, and then to compel adherence to that scheme; but the Government authorities are virtually giving the leaseholders a free hand. It is one more proof—and utterly superfluous at that—that British Governments know nothing and care less about architecture.

Public Hall, Leicester.

The two most important buildings erected in Leicester during the past year are the new public hall (Messrs. Stockdale Harrison and Sons, architects) and the west front of St. James's Church (Messrs. Goddard and Catlow, architects). The public hall, which is illustrated below, is planned with its main entrances facing Victoria Park, the internal dimensions of the hall being 144 ft. by 90 ft. The cost of the building has been about £15,000. Messrs. Haskard, Rudkin, and Beck were the general contractors.



PUBLIC HALL, LEICESTER.
STOCKDALE HARRISON AND SONS, ARCHITECTS.

Hongkong and Shanghai Bank.

Among the new buildings erected this year in the City of London perhaps the most important is the Hongkong and Shanghai Bank, in Gracechurch Street, completed in November from designs by Mr. W. Campbell Jones, F.R.I.B.A. The building is of steel-frame construction, the façade being carried out in Portland stone. The banking hall is a very large apartment, lined with marble. At one end is a screen in white Pentelikon marble, bearing in the centre a

sculptured group of three Chinese boys. The floor of the banking hall is laid with mosaic having a coloured border next the counters, the latter having grilles of oxydised silver finish. In the basement are provided various offices for different departments of the bank's business, and here, too, are the strong-rooms, which are very massively constructed. On the top floor of the building is a luncheon room for the exclusive use of the bank's staff. The woodwork, of Cuba mahogany, is admirably executed, as also is the



HONGKONG AND SHANGHAI BANK. GRACECHURCH STREET, LONDON, E.C.
W. CAMPBELL JONES, F.R.I.B.A., ARCHITECT.

plasterwork. The craft work, indeed, throughout the building is remarkably good, whether in plaster, metal, or wood. The general contractors were Messrs. G. Trollope and Sons and Colls and Sons, Ltd., who also executed the woodwork and installed the electric lighting. Messrs. Redpath, Brown and Co. were responsible for the steelwork; Dent and Hellyer for the plumbing and sanitary work; Wheeler and Sons for the heating and ventilating; and Waygood and Co. for the lifts. The marble, tile, and mosaic work was executed by Art Pavements and Decorations, Ltd.; the modelled plasterwork by G. P. Bankart; stone carving by Aumonier and Son; art metalwork by George Wragge, Ltd., and H. H. Martyn and Co.; iron and bronze grilles by the Bromsgrove Guild; strong-room doors and safes by Chubb and Sons; electric synchronising clocks by the Silent Electric Clock Co., Ltd.; casements by Crittall and Co., Ltd.; patent glazing and leaded lights by the British Luxfer Prism Syndicate, Ltd.; grates and cooking plant by George Wright; wood-block flooring by the Acme Wood Block Flooring Co.; asphalt work by Thomas Faldo and Co.; door furniture by the Bromsgrove Guild and Carter and Aynsley; folding gates by

the Bostwick Gate Co.; lightning conductors by R. Anderson; artesian well by Alfred Williams.

French Architectural Drawings.

A comprehensive series of designs submitted at the Ecole des Beaux-Arts, from the entrance examination designs to those for the final diploma, were shown at the Architectural Association in May. The series comprised drawings showing the setting-up of perspectives, details of stonework and steelwork, and "projets" for a theatre, a fountain in a court of the Louvre, a large shop, a campanile, a bourse, a town-hall, baths, and other buildings, with a few detached subjects like a bank note and a glass exhibition case. The drawings were in the now familiar manner of rendering in wash and colour, and were of considerable artistic value as well as technical interest. The exhibition, too, had another interest in being a sort of architectural expression of the *entente*, for it is the intention to bring the London and Paris schools together by a system of exchange exhibitions at intervals of one or two years. Thus, as supplementary to the French drawings, there was shown at the Archi-



HONGKONG AND SHANGHAI BANK: THE BANKING HALL.
W. CAMPBELL JONES, F.R.I.B.A., ARCHITECT.

tectural Association's premises, a selection of drawings submitted for the R.I.B.A. prizes and studentships during the past five years, which drawings, it is hoped, "will form the nucleus of an exhibition of English architectural drawings which (by the kindness of the Société des Architectes diplômés) will probably be held in Paris in the near future."

Buildings in Aberdeen.

The most important new building in Aberdeen is the addition to the University which is illustrated on this page. Messrs. Marshall Mackenzie and Son were the architects. It carries on the Gothic treatment of the main block of the University, which was completed some years ago to Messrs. Mackenzie's design. Another new building in Aberdeen is the Clydesdale Bank, of which Mr. A. H. L. Mackinnon is the architect.

The Peril of St. Paul's Cathedral.

In June last Sir Francis Fox delivered to the Dean and Chapter of St. Paul's Cathedral a further report—supplementary to the report he made towards the close of last year, when he dealt mainly with the danger threatened by the tramway scheme, which was thereupon abandoned—on the condition of the fabric, and a committee of experts has been appointed to consider it. Work on the buttresses and the main piers is proceeding steadily. The following passages from the report will show that important conclusions have been established as a result of thorough investigation.

In order to ascertain whether the Corporation of London had any records of the nature of the subsoil adjacent to the Cathedral (said Sir Francis Fox) I placed myself in communication with the engineer to the Corporation of London, Mr. Sumner, and he was instructed to furnish me with any information in his power. He had a careful search made among the

archives of the City of London, and found the original plan of the sewer which was proposed to be made on the south side of the Cathedral in 1831, on which also is indicated the shaft in the street referred to by Mr. Brunel and Mr. John Rennie in their protests of that date. It appears that on August 24th, 1831, the Commissioners of Sewers appointed Mr. Telford, Mr. Brunel, and Mr. Acton to meet and confer with the representatives of the Cathedral, Mr. Rennie, Mr. Smirke, and Mr. Cockerell, to report their opinion on the construction of the sewers. There is a memorandum by Mr. Cockerell, dated September 1st, 1831, in which he states that a shaft, or well, in close proximity to the south porch, was sunk 31 ft. below the street level; that the bottom was filled with sand and water, which came in in such quantities that the workmen were compelled to stop work, the sand falling from and undermining the sides. He observes that "on the north side of the well, towards the Cathedral, the sand has come in in greater quantity." Mr. George Rennie, writing on September 2nd, 1831, says, "The sand is a quicksand, and therefore dangerous to the Church." Mr. Cockerell writes on September 6th, 1831, that "at a meeting of five of the six persons to-day Mr. Brunel coincides in a great measure with them respecting the operation, their opinion being that great risk is incurred to St. Paul's Cathedral by the present line of sewer. The sand is so loose as to run through the fingers. The opening in the bed of sand has given vent to the water in the sand, necessitating a steam engine to keep the sewer already building dry. The excavation to the south of the Cathedral is inundated with running sand and water . . . it is impossible to retain the sand; consequently it is feared that much more than the contents of the sewer, 6 ft. by 7 ft., is removed, and already damage may have been occasioned; the continuing of it seems obviously fraught with the utmost peril to the



NEW BUILDINGS. ABERDEEN UNIVERSITY.
A. MARSHALL MACKENZIE AND SON, ARCHITECTS.

Cathedral." In consequence of this, on September 21st, 1831, the Commissioners of Sewers "ordered the shaft near the South Transept of the Cathedral to be filled up forthwith and be made secure, the sewer to be diverted." The same quicksand was encountered in the excavations for the warehouses on the south side of the street, particularly those at the corner of Godliman Street.

The plumbing of the dome and walls has been carried out on several occasions, with the result that they are found to be out of truth in different places, generally in a south-westerly direction. The amount of divergence would be negligible were the fabric at rest and the core of the walls and piers intact, but though the movement is not in itself serious at present, still it is imperative that it should be stopped, otherwise it is only a question of time when danger will be reached. In consequence of the tilting of the eight main piers of the dome, due to the excessive and unequally distributed pressure on the foundations, the main piers in places have been seriously cracked and require attention.

The buttresses to the drum of the dome are thirty-two in number, of which twenty-three are cracked, those to the south-west being very seriously disintegrated. In the case of one, when a lantern was held on one side of the buttress (which is 4 ft. 6 in. in thickness) the light could be seen from the other side. I find that these buttresses have only a facing of ashlar, the inside being apparently small rubble thrown in more or less loosely. Both the outer and inner walls of the drum itself are also cracked, and have been pointed up in years gone by.

As we pointed out in a leading article in this journal some short time ago, Wren, through lack of knowledge



BUSINESS PREMISES, GREAT PORTLAND STREET,
LONDON, W.

ROBERT ANGELL. LICENTIATE R.I.B.A., ARCHITECT.

Bovis, Ltd., General Contractors.



"THE WHITE HOUSE," NEW STREET, BIRMINGHAM.

NICOL AND NICOL, ARCHITECTS.

of design, inadvertently left too small a margin of safety in his supports. When he built his foundations he intended to put a dome of much less altitude, and consequently of much less weight, upon them than he has actually done. There is the evidence of the "warrant" design with its low dome to support this assumption; and even if the surmise is correct that Wren never intended to build it, there is a drawing in the library at St. Paul's in Wren's hand which shows a quarter plan of the dome at the level of the church floor, upon which a plan of a dome is superimposed. This upper plan consists of a single wall to support the drum instead of the two walls which now support the circular peristyle. This, again, means, whatever the outline of the dome, a lighter superstructure. Had Wren been building upon a perfectly inflexible foundation, had he taken care to have his piers built of ashlar, his narrow margin of safety might have sufficed him. As it has chanced, the foundation is faulty, and the piers are thin shells of Portland stone filled in with rubble. The header stones, which were inserted to bind them together, have snapped with settlement, and so do nothing to give cohesion to them. Moreover, the mortar which Wren used has perished and the rubble filling has become disintegrated.

The weight of the dome, down to the level of the top of the piers, is 32,000 tons, which exercises a pressure of eleven tons to the foot over their area. Even if the piers were built of solid Portland stone they would be burdened to their limit. But when it is considered that they are merely cased with Portland stone, and that the core is rubble, the anxiety of those responsible for the safety of the cathedral can be easily understood.

As a matter of fact these piers caused trouble immediately the building was finished, for in 1709 Edward Strong repaired flaws in them occasioned by the pressure. Some stones were cut out, others merely repaired with lead and plaster. But as the new stone

was computed at 6 in. thick, the repairs, although extensive in their area, were merely superficial. This early settlement was of course due to the building finding its bearing, and from that time for one hundred years little movement was observed, until the altered condition of the subsoil in the nineteenth century began the trouble anew.

New Buildings in Birmingham.

The most important architectural works completed in Birmingham during the past year include the new building for the Society of Artists (Messrs. Crouch, Butler, and Savage, architects); "The White House," New Street, illustrated on the preceding page; and business premises in Paradise Street (Mr. S. N. Cooke, architect).

Board of Trade Offices.

One of the most important competitions instituted during the earlier part of the year was that for the new offices of the Board of Trade, to be erected on a site in Whitehall Gardens. The whole of the houses in Whitehall Gardens have been acquired up to the grounds of Montagu House, the residence of the Duke of Buccleuch, and this space and the site of the present premises will be occupied by the new offices. These buildings will have a frontage to the Embankment of about 350 ft., another to the Horse Guards Parade of 300 ft., and one to Montagu House of 208 ft. A space will be left between the new building and Montagu House for a roadway to the Embankment. There is at present no roadway

from Whitehall to the Embankment for some distance on either side of the proposed road. The building line will be a continuation of Whitehall Court, and this will leave a vacant space of about 150 ft. deep, which will probably be laid out as gardens. The whole of the vacant land in front of the houses in Whitehall Gardens is to be built upon, and nearly one-third of the square in front of the present offices will also be occupied. The new offices will not have any frontage to Whitehall, as it is not intended to interfere either with Gwydyr House or the Royal United Services Institution. It is proposed first to demolish the houses which have been acquired for the extension of the offices, and to build on the site offices for departments already in occupation of the adjoining premises. When the whole scheme has been carried out it is expected that the great majority of the eighteen or twenty departments of the Board of Trade, now scattered in many parts of London, will be housed under one roof. The assessors originally appointed were Mr. Reginald Blomfield, Mr. John Belcher, and Sir Aston Webb. The vacancy which arose on the death of Mr. Belcher has since been filled by Mr. Ernest Newton. From sketch designs submitted, not more than ten architects will be selected to submit designs in a final competition.

St. Paul's Bridge.

At the end of November the interesting announcement was made that the Bridge House Estates of the City of London had decided to invite competitive designs for the new St. Paul's



ART SCHOOLS, BOURNEMOUTH. F. W. LACEY, F.R.I.B.A., ARCHITECT.
Constructed on the Kahn System of Reinforced Concrete.

Bridge, and detail particulars have since been published. Designs are invited from British architects for the architectural treatment of the bridge in masonry and other works. Sir William Emerson, P.P.R.I.B.A., has been appointed assessor. Premiums of £300, £200, and £100 will be awarded. The author of the design placed first will be appointed architect, unless his scheme proves too costly. If the work be not proceeded with within twelve months from the notice to prepare working drawings, the architect will receive the sum of £400, which sum will later merge into his commission. Messrs. Mott and Hay will be responsible for the engineering portion of the construction, foundations, etc. Quantities will be taken out by a surveyor appointed by the committee. The committee desire to obtain the finest architectural design at reasonable expenditure: (1) For architectural treatment of the bridge itself; (2) for the approaches and staircases on the south side of the river and the abutments and wing walls on the north side of the river; (3) for the bridge access stairways and adjuncts over Queen Victoria Street; (4) for the bridge over Upper Thames Street. The junction between the northern approach road and Cannon Street at St. Paul's Churchyard is not to be dealt with in this competition. The staircases and abutments on the south side of the river are to be considered with a view to a possible future embankment of the south bank of the Thames. The committee are not prepared to consider the possibility of a future embankment on the north side of the river. Competitors are not asked to deal with any property between the river and Cannon Street, except at points indicated on the plan which has been issued.

Metropolitan Water Board Offices.

More recently it has been announced that the Metropolitan Water Board has decided to appropriate the

land belonging to it in Rosebery Avenue as a site for its central offices. Six architects are to be invited to prepare designs for the new buildings, which are not to cost more than £80,000, and are, if it is "reasonably possible and practicable," to incorporate the Oak Room and the adjoining room at present in the offices of the New River Company in the Avenue. Included in the site, which has an area of about seven acres and a quarter, are the Round Pond and three filter beds, and the pond is to be obliterated at a cost not exceeding £1,000. A professional assessor is to be appointed to advise on the conditions of the competition and on the designs for the buildings. For the moment, our only comment is that, for a public building of such importance, an open competition would have been preferable, as giving an enormously extended choice, and as tending possibly to the discovery and certainly to the development of architectural talent that may remain latent and sterile for lack of such opportunities as this ought to afford.

New Parliament Buildings for Canada.

Canada, in seeking designs for her new Parliamentary buildings, for which a magnificent site at Ottawa has been chosen, seems to be setting about the work in the right spirit. At all events, the Canberra muddle has been avoided at the outset. Properly qualified assessors were appointed, and the competition is limited to architects of the British Empire. In the case of Canberra the competition was banned by organised architects, and consequently it became limited to outsiders, with the natural result that foreigners took the chief premiums. From the Canadian competition both these contingencies have been eliminated. Very wisely, the co-operation of the R.I.B.A. has been sought, and Mr. T. E. Collcutt has



ETON OLD BOYS' CLUB, HACKNEY WICK, LONDON, N.E.

H. S. GOODHART-RENDEL, ARCHITECT.

(See next page.)

been appointed one of the three assessors, the other two being Canadian architects. There are sure to be those who will say that in deliberately denying herself the services of American and French architects Canada has shown less wisdom than loyalty, but this proposition ignores the strength of the Canadian feeling. In some senses Canada is the more intensely British for the proximity of the United States, and one feels instinctively that she is morally, if not artistically, justified in choosing that her Parliament buildings shall in no way offend the national sentiment, to which they ought to be in all respects an expressive monument.

Eton Old Boys' Club.

This new building, founded and supported by Old Etonians, comprises a club and institute for the working lads of Hackney. The site presented many difficulties on account of its triangular shape, by which the character of the elevations was largely determined. The materials used are golden-yellow stock bricks and Portland stone, the roof being covered with red pan-tiles. Mr. C. R. Price was the general contractor.

The Demolition of Southwark Bridge.

Southwark Bridge was closed to traffic in February preparatory to its demolition—which work is proceeding. It was in the year 1814 that John Rennie was appointed engineer-in-chief to the Southwark Bridge Company. Considerable opposition was made to the Act of Parliament for the construction of the bridge by the Corporation of London and the Conservators of the river, mainly on the score of obstruction to navigation. But the genius of John Rennie overcame the objections of the City Fathers; he realised that, as this was the narrowest part of the river between Blackfriars and old London Bridge, large arches might be adopted. Stone construction was out of the question, except for the abutments and startings, yet the theory of arched voussoir design was to be carried out in cast-iron. Rennie submitted a design to the Corporation which consisted of three cast-iron arches, the centre one being of 240 ft. span, with a versed sine,



NEW SOUTHWARK BRIDGE: DETAIL OF PIER.

SIR ERNEST GEORGE, A.R.A., ARCHITECT.

or rise, of 24 ft., and the two side arches of 210 ft. each, with a versed sine of 18 ft. 10 in. each, the piers being 24 ft. in width. This design was approved and embodied in the structure which is now being demolished. The unusual span of these novel arches caused much controversy in scientific circles; in fact, Rennie's calculations were questioned until Dr. Young, a well-known mathematician of the day, undertook to investigate them, the result being the complete vindication of Rennie's



OLD SOUTHWARK BRIDGE: VIEW FROM SOUTH SIDE.

JOHN RENNIE, ARCHITECT.

theories. The new bridge which is to take the place of Rennie's is to be built to the designs of the City Engineer, Mr. Basil Mott, in conjunction with Sir Ernest George, A.R.A., who will be responsible for its architectural features.

Henry VII.'s Chapel and the Order of the Bath.

The re-opening of the Chapel of Henry VII. in Westminster Abbey, the chapel in which the knights of the Order of the Bath were installed, was seized by the lay Press for the "writing-up" of the chapel: as, "For those who understand, there is no such triumph in all the records of the builder's craft as is the roof of Henry VII.'s chapel. . . . Nowhere else is there that easy insolence with which Sir Reginald [Bray] suspended in mid air 200 tons of stalactite stone as if they were clustered snow." Certainly the fan-vaulted

roof is one of the three similar roofs in England that are unrivalled abroad; the others being, of course, the roof of King's College, Cambridge, and that of St. George's Chapel at Windsor, these three representing the grand climax of the Perpendicular style. It is gratifying to see the chapel of St. Mary the Virgin, commonly known as Henry VII.'s Chapel, put to some more dignified use than that of a mere museum or show-place. Not that this character should be abolished; but that the public may have an additional incentive for visiting what is by common consent esteemed as a supreme achievement in architecture.

The Regilding of the Cross of St. Paul's.

Many of the tasks involved in the preservation of St. Paul's Cathedral are of much general as well as technical interest, but among the minor repairs



THE VILLA MARINA, DOUGLAS, I.M.: VIEW OF INTERIOR.

PERCY ROBINSON, F.R.I.B.A., AND W. ALBAN JONES, ARCHITECTS.

Conical dome (100ft. span), floors, roof, flats, and gallery, etc., on Kahn System of Reinforced Concrete

recently carried out nothing has touched the popular imagination more than the work of regilding the cross that stands higher than anything else above London. This was a costly and hazardous undertaking. The work, which also included the caps to the two western towers, is now complete, and a definite improvement of these prominent features of the building has undoubtedly been effected, though the gold leaf cannot be expected long to retain its brilliance in such an atmosphere as London's. It is interesting to note that the original ball and cross which Wren erected were taken down in 1821, when the present ones—designed we believe by Cockerell, then Surveyor to the Dean and Chapter—were set up. Much trouble was then experienced owing to the boisterous weather, scarcely a day having passed without some part of the scaffolding becoming deranged. On one occasion a great part of the circular framework of heavy planks, erected above the Golden Gallery for the prevention of accidents, was carried over the house-tops, to a considerable distance, and later an observatory which had been built above the usual site of the cross narrowly escaped the same fate. This observatory was put up by a young artist named Thomas Hornor, who was anxious to make panoramic drawings of the metropolis and the surrounding country. To this dizzy place he climbed daily, and eventually made a complete panoramic view of London and its environs on 280 sheets of drawing paper!

Sir H. H. Bartlett.

The New Year Honours List for 1913 included the name of Mr. H. H. Bartlett, who is a partner in the firm of Messrs. Perry and Co. (Bow), Ltd., the well-known contractors, and has other extensive commercial interests. He has been actively interested in the development of university education, and, in particular, has been a generous benefactor to London University. As in the person of Sir T. G. Jackson, architecture was honoured, so the title of Sir H. H. Bartlett may be taken as reflecting the importance and prestige of the building industries.

Sir Charles Allom.

Sir Charles Allom, upon whom the honour of knighthood was conferred on the occasion of the

King's birthday, is a partner in the London firm of White, Allom, and Co., decorators, and was a member of the Royal Commission for the Brussels, Rome, and Turin Exhibitions.

Sir Stephen Collins.

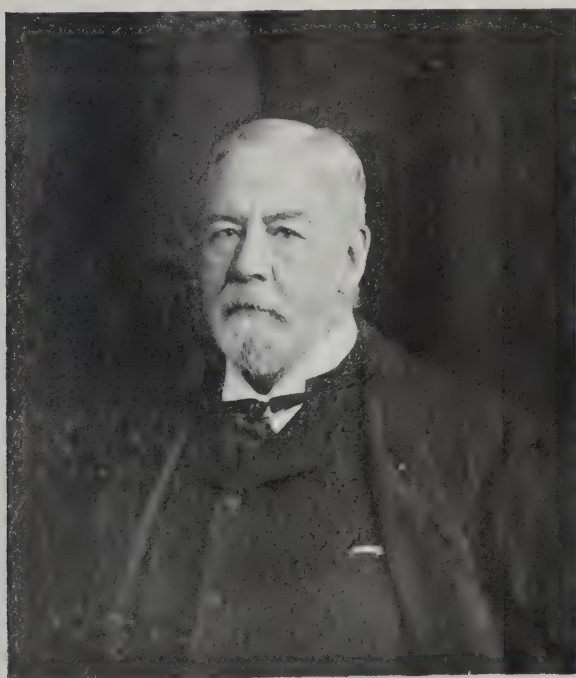
Sir Stephen Collins, M.P., who received a knighthood on the King's birthday, has represented in Parliament since 1906 the Kennington Division of Lambeth, was for six years a member of the London County Council, and is head of the firm of Stephen Collins, Ltd., stone merchants and contractors, Vauxhall.

Sir Thomas Graham Jackson.

The baronetcy conferred upon Mr. T. G. Jackson at the beginning of the year may be regarded not only as a well-merited personal distinction, but as an honour to architecture as a profession. Sir Thomas Graham Jackson was born at Hampstead in 1835. After finishing his University course at Oxford he became a pupil of Sir Gilbert Scott (1858-61), beginning his career, as Sir Ernest George said when presenting him in 1910 with the Royal Gold Medal, "in the heat of the Gothic Revival." He thus acquired a knowledge of mediæval methods of building which he has consistently exhibited in his works; for the Gothic inspiration is felt in most of his buildings, although they may be clothed with forms or detail of other origin. Sir Thomas Jackson, as all who know him will agree, is an artist of strong individuality, and one who has materially assisted in bringing about a more intimate association of the allied arts. For some time he was an active member of the Art Workers' Guild, of which he is a past master. The name of Sir Thomas Jackson is chiefly identified with the University city of Oxford, where he has designed many important works, including modern buildings for Brasenose, Lincoln, Corpus, Trinity, Balliol, and Hertford, the new Radcliffe Library, the Examination Schools, Somerville Hall, the City High School, and the High School for Girls; also the restorations of the Bodleian Library, St. Mary's and All Saints' Churches. To his credit at Cambridge are the new Law Library and Law School, as well as the Sedgwick Memorial Museum and other buildings. Sir Thomas, who took his degree at Oxford (Scholar, 1854), and was elected to a Fellowship of Wadham, was elected A.R.A. in 1892 and R.A. in 1896. He is a Fellow of the Society of Antiquaries, while Cambridge has conferred upon him the degree of LL.D. He has gained considerable distinction as a writer on architectural subjects, his published works including "Modern Gothic Architecture" (1873); "Dalmatia, the Quarnero, and Istria" (1887); "Wadham College, Oxford" (1893); "The Church of St. Mary the Virgin, Oxford" (1906); and "Reason in Architecture" (1906). Sir Thomas has made repeated visits to the Nearer East, especially to the Balkan States, where he studied Romanesque in its natural environment, acquiring so intimate a knowledge of the traditional method of building that the Dalmatians sought his advice in the building of the Campanile of their cathedral at Zara. Among the many important works which Sir Thomas has executed, besides those mentioned above, are restorations at Eltham Palace, Rushton Hall, Great Malvern Priory, Christchurch Priory, Bath Abbey, and, above all, Winchester Cathedral; several new churches; and new buildings for the great public schools at Eton, Westminster, Rugby, Harrow, Radley, and elsewhere.

The English Church of St. Mary, Rotterdam

The demolition of the English Church of St. Mary, Rotterdam, drew from Mr. A. F. G. Leveson-Gower a strong protest against the destruction of so



SIR THOMAS GRAHAM JACKSON. R.A., F.S.A.

interesting a building. Either its history or its architecture should have saved it from so deplorable a fate. Marlborough and Admiral Rooke worshipped within its walls. As to the architecture, this was sufficiently fine to give rise to a common but (we imagine, after a careful examination of photographs of the elevation and the interior) erroneous assumption that the church was designed by Wren; but, independently of the question of authorship, the design was so characteristic of the best work of its period, and so charming in itself, as to command a degree of admiration that should have preserved it for generations to come.

Ministry of the Fine Arts.

A meeting held in November at 9, Conduit Street, to consider the advisability of forming a Ministry of the Fine Arts, was attended by Mr. David Murray, R.A. (in the chair), Sir George Frampton, R.A., Mr. W. Reynolds Stephens, chairman of the Imperial Arts League, and Mr. Edwin Bale, vice-chairman; Mr. W. R. Colton, A.R.A., Sir Frank Short, R.A., Mr. Authur Hacker, R.A., Professor E. Lanteri, Mr. Solomon J. Solomon, R.A., Mr. H. C. Stanley Peach, and Mr. E. Guy Dawber, Mr. H. W. Wills, and other Fellows of the Royal Institute of British Architects. After considerable discussion the following resolution was proposed and carried unanimously: "That this committee undertakes to consider the possible lines on which a Ministry of the Fine Arts might be advantageously formed, and, if a satisfactory scheme can be evolved, pledges itself to do its best to bring such a scheme into operation." An executive committee was also formed.

The Rome Scholarships.

The foundation of the British School at Rome was an event of first-class importance to English art. It meant that the whole system of education which is being gradually built up in England had received from the Government not only recognition but a fitting culmination. Though no definite promise to do so has been made, there is no doubt that the Government will endeavour, in the manner of the French Government, to provide work for the Rome scholars on their return. It will be part of the service which the School at Rome will render to the



H. CHALTON BRADSHAW,
Winner of the Rome Scholarship in Architecture.

nation that, while adding point and direction to the training given to young architects, painters, and sculptors throughout the country, it will at the same time be returning to the country artists whom in their respective arts the Government can readily recognise and employ. The scholarships founded under these conditions would, apart from their money value, rank at once as the chief prizes open to the art student. When, however, it is remembered that a Rome scholarship is of the value of £200 for three years, with free studio accommodation, and that in architecture it is given after a far more rigorous test in design and draughtsmanship than the Soane or the Tite or any other English prize, it will be seen that our English "Prix de Rome" will soon rank with the famous Paris prize both in professional and public esteem. The first Rome Scholarship in sculpture was awarded to Mr. Gilbert Ledward, who was born at Chelsea in 1888. After receiving a general education at St. Mark's College, Chelsea, he went to Karlsruhe, and on returning to England, in 1902, studied art at the Chelsea Polytechnic. From here he proceeded to the Goldsmiths' College, New Cross, where, at the end of his second year, he gained a London County Council art scholarship, with which he entered the modelling school of the Royal College of Art. In his second year he won the Royal College of Art Scholarship, value £60 a year, tenable for three years, which enabled him to complete five years of study with Professor Lanteri. In 1910 he gained the British Institution Scholarship for Sculpture, value £100, and entering the Royal Academy Schools he was awarded the Armitage Prize for Sculpture. Mr. Ledward has practised privately as a sculptor and has also been engaged as modelling master at the Lambeth School of Art. The Scholarship in Architecture was awarded to Mr. Harold Chalton Bradshaw, who was born in Liverpool in February, 1893. He was educated at the Holt Secondary School, Liverpool. In his sixteenth year he joined Professor Reilly as his private assistant, and to help with the lantern at his lectures. In 1911 the University of Liverpool made him a grant enabling him to join the School of Architecture. Last July he gained the University Certificate in Architecture in the first class, so obtaining exemption from his Intermediate Examination, R.I.B.A. He was also awarded at the same time the Holt



GILBERT LEDWARD.
Winner of the Rome Scholarship in Sculpture.



IVEAGH PLAY CENTRE, DUBLIN. McDONNELL AND REID, ARCHITECTS.
Expanded Metal Lathing used throughout for Plasterwork.

Travelling Scholarship of £50. Last Christmas he competed for the Soane medallion, and was placed second and awarded an honorary mention. About the same time he obtained the first of Sir William Lever's prizes in the Liverpool School for a design for a new river front for Liverpool, which was published in this journal. The Scholarship in Decorative Painting was awarded to Mr. Colin Gill, of Cudham, Kent. Mr. Gill, who is twenty-one years of age, began his art studies at St. Dunstan's College, Catford. In 1908 he became a pupil of Mr. W. H. Caffyn, entering the Slade School in 1910, where (in 1911) he won the Slade Scholarship, value £70, and (in 1912) the British Institution Scholarship, value £100. The Henry Jarvis Travelling Studentship in Architecture was awarded to Mr. Louis de Soissons, student of the Royal Institute. Mr. de Soissons was the first winner of this studentship, which is open to Associates and Students of the R.I.B.A. under thirty years of age, and is of the value of £200 per annum, tenable for two years at the British School at Rome. Mr. Louis de Soissons won the Tite Prize of the Royal Institute in 1912.

London Edward VII. Memorials.

The purchase of the Shadwell Market from the Cor-

poration by the King Edward Memorial Committee having been completed, various plans for the laying out of the site as a garden, park, and playground have been under consideration. It will be necessary to build a wall or embankment on the foreshore of the river, and Mr. F. Palmer, C.I.E., consulting engineer to the Port of London Authority, and a member of the firm of which Sir Alexander Rendel is the head, has agreed to prepare plans and estimates of the cost. Application has been made to the Port of London Authority for permission to extend the river wall or embankment so as to include in the park a portion of the foreshore which is now a mud reach when the tide is out; and the Authority have provisionally expressed their disposition to sanction the scheme. If money is available for the purpose, after the laying out of the grounds, it is intended also to erect in the park some form of memorial monument.

Iveagh Play Centre, Dublin.

This new building, in St. Patrick's Park, is one of Lord Iveagh's many gifts to the city of Dublin. It is intended to serve to raise the moral and social tone of the children who attend it, by teaching them various games and dances and supervising them while at play. The building is carried out in red brick and Portland



NEW ASYLUM, GATESHEAD, HINE AND PEGG, ARCHITECTS.
Floors, Ceiling, Chapel and Reservoir in Grounds on Moss System of Reinforced Concrete.



A MOTOR CAR FACTORY, DUMFRIES, FOR ARROL AND JOHNSTON, LTD.
Constructed on the Kahn System of Reinforced Concrete.

stone, the roof being covered with green Westmorland slates. Expanded Metal lathing has been used throughout for the plasterwork. The architects were Messrs. McDonnell and Reid, of Dublin, and the contractors Messrs. McLaughlin and Harvey.

The Lay-out of the New Delhi.

It was with more than ordinary curiosity that the plan and report of the Delhi Town Planning Committee were perused. Not only are the physical conditions of the site novel to European practice, but also the political significance of the problem is exceptional: otherwise the matters to be dealt with are such as are common to all cities. The report was certainly weak in its sociological presentation of what is likely to be the direction of growth; and the plan, judged as an artistic lay-out, was extremely disappointing. The site for the Government House and Secretariats, in their relation to the river and to old Delhi, is no doubt well chosen, and the main axis of

the Government group, projecting as it does on the river front, is well directed. The terminal station, too, situated at the approach to the new city, and midway between the new and old towns, is well placed. So far as the general disposition of these important sites is concerned, there is no fault to be found. It is when we analyse them in detail that the weakness of the plan is revealed; and not only here, but also in the planning of the general network of streets. Even if the station "Place" be regarded purely as an arrangement of dignified centres and approaches, there is no excuse for its ugly shape. Its ungainly division of interests evidently arises out of an indecision as to whether the station or the axial approach to the Government centre and the Jama Musjid is of the chief importance. Indeed, a conspicuous fault to be seen throughout the scheme is the seeming uncertainty as to what is of primary and what of secondary interest. A rectangular or circular station "Place," with main streets at its entering angles, and with its main axis on the station,



NEW PREMISES FOR G. AND J. WEIR, CATHCART, GLASGOW.
Constructed on the Kahn System of Reinforced Concrete.

would have given a symmetrical arrangement for the radial roadways, and would have been a simpler, a more direct, and altogether a better shape. But of all the defects to be found in the lay-out of the plan, viewed æsthetically, the most obvious is the way in which the main street from old Delhi and the station terminates before it arrives at its destination—the Secretariat group. If ever this new Delhi develops beyond the possession of a Government House and its immediately associated streets and buildings, it is clear that much more consideration will need to be given to the individual requirements of those to whom will be allotted sites, and this will necessitate a good deal of alteration to the plan. But, after all, the plan as issued could not be regarded as more than a diagram, and no doubt most of its faults will be corrected as the work proceeds. The principal features seem generally to have been put in the right place, and certainly the whole conception shows a boldness of handling and an appreciation for scale which it is to be hoped will not be spoiled in execution through paucity of means. The Government of India, it has been announced, are "steadily adhering to the policy of encouraging indigenous talent." Studios are to be formed, where will be welcomed "any Indian craftsman who may show himself by practical work to be able to assist in furnishing decorative details for important buildings. Opportunity will be afforded in this way for indigenous artistic talent to find expression, and to be trained to further development in adaptation to modern Indian requirements. Mr. E. L. Lutyens and Mr. Herbert Baker, with Sir Swinton Jacob co-opted, have been appointed architects for Government House "and another important building" in the new capital at Delhi. Mr. Lutyens's work is too well known to need any comment in these columns: Mr. Baker's is not so familiar, but those who have seen some of the excellent



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buildings for which Mr. Baker has been responsible in South Africa will recognise the qualities which make his selection for Delhi a very admirable one.

The style of architecture to be adopted for the new Delhi continued to excite attention. In the



FURNITURE REPOSITORY, CITY ROAD, LONDON, E.C. YETTS, STURDY AND USHER, ARCHITECTS.
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House of Commons towards the end of 1912 it was stated, on behalf of the Government, that the Town Planning Committee were waiting until their second visit to Delhi before issuing their full and final report. Their first impressions were embodied in a preliminary report, and considered by the Indian authorities, who suggested certain modifications. The Committee had no authority to deal with anything except the lay-out of the new city. The style of architecture was a question for the future, very little having been decided in regard to it. There would be a vast variety of buildings destined for different purposes. Each building must be of the form which would serve the particular purpose for which it was intended, and at the same time there must be general harmony which would make a complete and beautiful unit. Expressing his own personal opinion Mr. H. Baker, Financial Secretary to the War Office, said there was really no reason why they should not have Indian and European architecture side by side. The Secretary of State had decided, and the Viceroy fully agreed, that the fullest possible scope should be given to Indian artists and craftsmen to work on the new city, to beautify it, and to give vent to Indian aspirations and ideas. There were serious difficulties in the way of adopting competition without restriction in the choice of an architect. Until the ground plan had been settled it was, he thought, premature to consider questions of architects and architecture. Referring to the choice of an architect, Mr. Arthur W. Soames, M.P., wrote: "Which is the best method to adopt in order to secure the finest possible work? There are the proverbial three courses: (1) An open competition; (2) a limited



ADA LEWIS LODGING HOMES, NEW KENT ROAD,
LONDON, S.E.

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CINEMATOGRAPH FACTORY, WARDOUR STREET, W.C.
DETMAR BLOW, F.R.I.B.A., AND FERNAND BILLEREY,
ARCHITECTS.

competition; (3) the selection of an individual. Now an open competition has this to recommend it, that it has an appearance of fairness, and it entrenches the authorities securely against the odious charge of favouritism. I submit, however, that it is ruled out of court if my two propositions are admitted. For it cannot be expected that a large number of competent architects, in addition to incurring the enormous labour and expense of such a competition, would be able further to dislocate their practices by a visit to India sufficiently long to enable them to saturate themselves with its atmosphere. Moreover, it is notorious that an open competition rarely attracts the best men, and this is not a task for the immature and budding architect, but for a man of wide experience whose artistic powers have attained their fullest development." He wished, therefore, to urge upon those in authority not to take the easy way out, but to take their courage in both hands and select the man whom, after the fullest inquiry, they found to be esteemed most capable of rising to this great opportunity. How were they to select him? It was submitted that there are two bodies fitted to advise on the subject, the Royal Academy of Arts and the Royal Institute of British Architects. Or, alternatively, let five-and-twenty picked architects be each of them asked to name the *two* men whom he considers best fitted for the work, and abide by the result of the vote. Mr. William Archer, in an article in the daily press, suggested that the Doric and Ionic orders of Greece are the most worldwide in their acceptance, and the least tinged (for the modern mind, at any rate) with any politico-historic associations. Though European in spirit, they were born on the confines of Asia; and as they have lost their national accent, they have been depolarised by time.

The Manchester Royal Exchange.

A great deal of discussion has taken place during the past twelve months concerning the Manchester



NEW WAREHOUSE FOR GLENDINNING AND MCLEISH, BELFAST.

JAMES A. HANNA, ARCHITECT.

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Royal Exchange, ending in a Select Committee of the House of Commons giving their approval to the scheme of the Manchester Royal Exchange Company for the enlargement of their premises at a cost of more than half a million. By this decision the Corporation scheme was set aside, and the Exchange directors can do as they propose—that is, extend their building to a point midway between Bank Street and St. Ann Street, where a new thoroughfare 18 ft. wide is to cut through; whereas the Corporation were pressing for the extension to be carried to the full extent of the area, up to St. Ann Street. This decision recalls the fact that one of the proposals put forward was the erection of a new Royal Exchange on the Infirmary site, which, like the Strand island site in London, remains a wilderness. Now that the Exchange is to be kept to its own area, all question of waiting to know what the possibilities of dealing with the Infirmary site might be are set at rest, and it is

to be hoped that some building worthy of this important position will be erected here. There has already been one competition in respect of an art gallery and library—never a happy association—and this proved futile enough. The next time, before architects are again invited to submit designs, it ought to be definitely settled what is going to be built on the site.

The London County Hall.

The London County Council accepted the tender of Messrs. Holland and Hannen and Cubitts, Ltd., amounting to £518,871, for the construction of the superstructure of the new County Hall and the execution of the finishings to the substructure of the building. At the meeting when the matter was brought forward the Finance Committee reported that the revised estimate of the total cost to which the Council was committed in respect of the building



THE NEW MAPPIN TERRACES AT THE ROYAL ZOOLOGICAL GARDENS.

THE LATE JOHN BELCHER, A.R.A., F.R.I.B.A., AND J. J. JOASS, F.R.I.B.A., ARCHITECTS.

Reinforced Concrete on the Somerville System.

was £1,930,000. Mr. Isidore Salmon, chairman of the Establishment Committee, said the tentative estimate given in 1908 was scarcely comparable with the estimate now presented, as the whole basis on which the estimate was framed had been altered. In 1908 the estimate was based upon the idea that the building would take five years to complete. Since then it had been thought desirable to accelerate the building. Consequently, in asking for tenders they requested builders to quote prices so that the building could be erected in three years. That meant a tremendous amount of overtime work. The cost of building materials had increased enormously, labour was considerably dearer, and they were faced with extra cost owing to the National Insurance Act. The delay had not been attributable to the committee or to any individual in the service of the Council, for everything possible had been done to accelerate the work. At the present time the work is proceeding rapidly; the contractors have erected a number of large cranes which enable the material to be handled with the utmost despatch and facility.

The Roof of Westminster Hall.

The condition of the ancient roof of Westminster Hall has been found to be much more serious than could have been supposed from the information that had been previously supplied to the public. A "Times" representative who had inspected the roof declared that some of the wall posts which he saw were seriously affected both with dry-rot and worm. In one case the post was entirely hollowed out at the back from top to bottom and he put the whole length of his arm into the cavity. At the back of some of the wall posts a sort of fungus running in layers with the grain has been found. It is a white substance like paper, fairly tough and from one-sixteenth to one eighth of an inch thick. The virtue has completely gone out of the wood, leaving it dry like tinder. It crumbled in the hand. The whole of the interior of one of the hammer beams has been eaten away. The ends of one of the principal

rafters which he examined, both those resting on the hammer-beam and those resting on the main collar-beam, have decayed.

Builders' Profits and the Revenue Bill.

The Revenue Bill, which was introduced on May 7th, has been printed and issued. It is a Bill of fifteen clauses, and its principal provisions are framed to confer exemptions from increment value duty upon builders and others developing estate for building purposes and upon small investors in land and house property.

According to an official statement which is issued, the Bill gives effect to the intentions of the Government, as expressed in the House of Commons, to make it absolutely clear that no part of a builder's trade profits shall be subject even to the possible operation of the increment tax.

The clauses of the Bill which frank building estates in course of development and free builders from the possibility or apprehension of any claim for duty in respect of trade profits were settled as the result of a conference between the Chancellor of the Exchequer and the legal representatives of the National Federation of Building Trades Employers, and approved and accepted by them as removing the apprehensions occasioned by the decision in the Lumsden case, and as satisfactory from the point of view of those engaged in the building trade.

As regards houses and shop property and other buildings, in all cases where the value of the building exceeds the value of the site, the vendor may have the increase in site value (if any) on the occasion of a sale determined by valuation without reference to the price obtained.

No increment value duty will therefore be payable on a sale of such property by a builder or investor on any profit he may make, except as to profits which may arise out of an increase in the value of the bare land apart from the buildings, and which are not due to any expenditure, or the execution of any works, on his part.



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Obituary, 1913.

The following deaths have occurred during the past year:—

Arrol, Sir William (Constructional Engineer). February.

Barnes, F. J. (Quarry Owner, of Portland). July.

Belcher, John, R.A., F.R.I.B.A. November.

Blundell, Richard (Builder, of Southport). October.

Brass, William (Builder, of the City of London). November.

Brown, William (Builder, of Salford). June.

Burden, Robert Henry, F.R.I.B.A. (Architect, of London).

Burnett, Joseph (Builder and Contractor, of Birtley). March.

Coombs, W. A., A.R.I.B.A. (Architect, of London).

Corby, J. B. (Architect, of Stamford). August.

Dashwood, F. (General Secretary and one of the founders of the Clerks of Works' Association). September.

Davis, Owen William (Designer of Interior Decoration). July.

Doyle, J. Francis (Architect, of Liverpool). February.

East, Sir Alfred, R.A. (Landscape Painter). September.

Eastwood, J. H., A.R.I.B.A. (Architect, of London). January.

Edwards, J. Vickers (Architect to the West Riding County Council). July.

Emden, Walter (Architect, of London). December.

Farnish, William (Builder, of Bradford). November.

Flagler, Henry Morrison (Railway Builder and Capitalist, of America). May.

Fletcher, Walter John, F.R.I.B.A. (County Architect and Surveyor for Dorset). April.

Flockhart, William, F.R.I.B.A. (Architect, of London). April.

Grayson, George Enoch, F.R.I.B.A. (Architect, of Rock Ferry, Cheshire).

Greaves, Charles J. (Builder, of North London). July.

Grover, John (Builder, of Islington). September.

Harrison, T. Harnett, F.R.I.B.A. (Architect and Surveyor, of Liverpool). September.

Haswell, F. R. Newton, F.R.I.B.A. (Architect, of North Shields).

Heal, Ambrose (Head of the firm of Heal and Sons, House Furnishers, of London). October.

Hochard, Gaston (Painter, of Paris). May.

Homan, Julius (Founder of the firm of Homan and Rodgers). February.

Hyde, Robert Singer, M.S.A. (Architect, of Worthing). September.

l'Anson, E. B., F.R.I.B.A. (Architect, of London).

Instone, Edward, A.R.I.B.A. (Architect, of London).



WILLIAM FLOCKHART.

James, T. E. L., F.R.I.B.A., M.S.A. (Architect, of Balham). May.

Jerdan, James (Architect, of Edinburgh). November.

Johnson, Joseph, A.R.I.B.A. (Architect, of London).

Jones, Charles, M.I.C.E., F.S.I. (Borough Engineer of Ealing). August.

Keeling, G. W., M.Inst.C.E. (Constructional Engineer, of Cheltenham). June.

Lee, A. W. (Building Surveyor to Birmingham City Council). November.

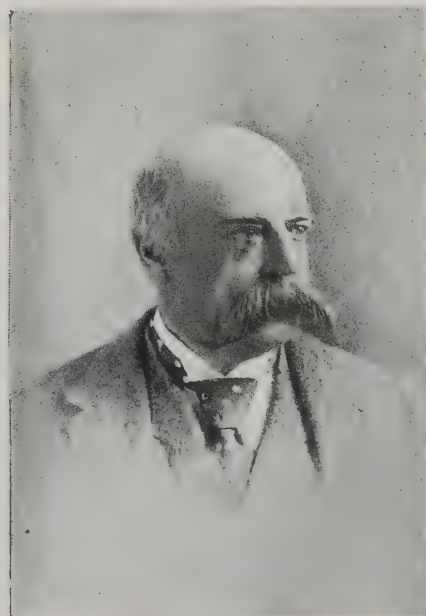
Lewis, W. G. Blackmore, F.R.I.B.A. (Architect, of London). February.

Lovatt, Henry (Builder and Contractor, of Wolverhampton). May.

Macdonald, Robert Falconer, F.R.I.B.A. (Architect, of London). February.



WALTER EMDEN.



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Marriott, James (Builder and Contractor, of Coventry). June.

Mortimer, William (Architect and Surveyor, of Lincoln). February.

Murray, William, A.R.I.B.A. (Architect, of Kingston Hill, Surrey).

Ormiston, G. E., M.Inst.C.E. (Late Chief Engineer of Bombay Port Trust). October.

Post, George B. (Architect, of New York). November.

Ralph, William Chasen, F.R.I.B.A. (Architect, of Wigan). July.

Runtz, Ernest A., F.R.I.B.A. (Architect, of London). October.

Scott, John Oldrid, F.S.A., F.R.I.B.A. June.

Smith, Francis James, F.R.I.B.A. (Architect, of Shoreham). January.

Smith, Sidney R. J., F.R.I.B.A. (Architect, of London). April.

Storey, Edward (Builder, of Lancaster). October.

Tinworth, George (Modeller in Terra-cotta). September.

Tristram, H. A. (Proprietor of the Andrews-Hawksley Patent Tread and Engineering Co.). February.

Vine, James (Estate Builder, of Eastbourne). June.

Watson, T. H., F.R.I.B.A. (Architect, of Hampstead). January.

Webster, J. D., F.R.I.B.A. (Architect, of Sheffield). October.

Whitelaw, James A. (Student, Winner of Soane Medallion, 1913). July.

Williams, W. C., F.R.I.B.A. (Architect, of Halifax). June.

Wilson, George, F.R.I.B.A. (Architect, of Edinburgh).

New Buildings in the Provinces.

In addition to the new buildings in the provinces which are referred to elsewhere in this issue, the following may be noted:—

Newcastle-on-Tyne: "Armstrong Yaw," Low Walker (Messrs. Cackett and Burns-Dick, architects); additions to the Armstrong College (Mr. W. H. Knowles, architect); additions to Messrs. Fenwick's premises (Messrs. Marshall and Tweedy, architects); Queen's Picture Hall (Messrs. Hope and Tasker, architects); additions to the River Tyne Commissioners' offices (Mr. W. H. Wood, architect).

Cardiff: No large building of importance has been completed, but the following are in course of erection—National Museum of Wales (Messrs. Smith and Brewer, architects); new Technical Institute (Messrs. Ivor Jones and Percy Thomas, architects); Principality Buildings (Messrs. Habershon and Fawckner, architects).

Leeds: Nothing of public importance completed, but an imposing new Telephone Exchange is being erected.

Nottingham: Scala Theatre, Market Street (Mr. H. Gill, architect); Gregory Boulevard and Baptist Church and Schools (Messrs. Sutton and Gregory, architects); business premises, Carrington Street; boathouse for Britannia Rowing Club; warehouses, Castle Place; and Trent Embankment (Mr. W. R. Gleave, architect); St. Christopher's Vicarage (Mr. F. E. Littler, architect).

The chief buildings carried out in Bristol during the past twelve months are the Royal West of England Academy, the architect of which is Mr. S. S. Reay, and the fine memorial to King Edward VII., by Messrs. Lanchester and Rickards. Among other works are—Additions to Grammar School (Mr. M. V. Gough,



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architect); open-air school, Knowle (Mr. B. Wakefield, architect).

The Land Inquiry Report.

In October the first report of the Land Inquiry Committee was published. It stated that there is a deficiency of cottage accommodation in 1,396 parishes in England and Wales; the so-called law of supply and demand being in abeyance mainly because the labourers are too poor to pay a "commercial rent"—that is, a rent which would save the cottage builder from absolute loss. It is a very curious situation, and one that apparently affords a just occasion for some sort of State intervention. Among the proposals put forward in the report the three that possess most practical interest from our point of view are—that it should be made a definite statutory duty of every rural district council to provide a cottage for every person permanently employed in a rural district; that where local authorities fail of their duty in the provision of dwellings, the central authority should have power to take the matter in hand; and that better facilities for building cottages should be given to public utility societies, who, it is suggested, should be able to obtain loans up to at least 80 per cent. of the value of cottages and land, at the minimum rate of interest at which the State can afford to lend, and with an extended period—to sixty years—of repayment.

The Goldsmiths' Hall.

The demolition of the old General Post Office and the clearance of the site has revealed the Goldsmiths' Hall in a surprising manner. The building was erected on the site of the old hall of the company (which is the fifth of the Twelve Great Companies of London) in 1829-1835 from designs by Philip Hardwick, R.A. It is rectangular, with fronts about 150 ft. in length and sides 100 ft. The western or principal façade has a slightly projecting centre, comprising six Corinthian columns and some rich carving; the whole being of Portland stone on a granite plinth.

Institute of Marine Engineers' New Building.

On October 29th the Lord Mayor laid the foundation-stone of the new building for the Institute of Marine Engineers, on Tower Hill. Mr. Victor Wilkins is the architect. On the sub-ground floor offices for letting purposes, having a separate entrance, have been arranged. On the ground floor will be the main entrance to the Institute, the secretary's room,



GRAMOPHONE FACTORY, HAYES.
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the writing room, and the library. On the first floor will be a lecture hall to accommodate 200 persons, a smoking room, and a retiring room. The second floor is devoted to the members' billiard-room, and the third floor is taken up by the caretaker's quarters. Lavatory accommodation is provided on every floor. It is expected that the buildings will be completed by April next. Messrs. Higgs and Hill, Ltd., are the builders.

New Buildings in Dublin.

The new buildings completed in Dublin during the past year include the Iveagh Play Centre, illustrated on page 705; the Rathmines Library and Technical Institute (Messrs. Batchelor and Hicks, architects); the Bank of Ireland, St. Stephen's Green (Mr. C. A. Ashworth); and the Kingstown Carnegie Library, illustrated on this page. In the last-named building Expanded Metal lathing was used throughout for the plasterwork.



CARNEGIE LIBRARY, KINGSTOWN, DUBLIN. O'CALLAGHAN AND WEBB, ARCHITECTS.
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The New Stationery Office.

Considerable progress has been made during the year with the erection of the new Stationery Office and H.M.O.W. Stores. The new structure is in two blocks, the larger in Stamford Street being the warehouse, and the smaller one facing Waterloo Road being the office portion. Including ground floor and basement, there are seven floors in the warehouse and eight floors in the



TRAFALGAR HOUSE, WATERLOO PLACE, LONDON.
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office block. The total floor area provided is 48,000 superficial feet. The floor slabs, of reinforced concrete, are $3\frac{1}{2}$ in. thick in the warehouse and 3 in. thick in the offices, and external walls generally are 4 in. and 6 in. thick. The building has been designed by and is being carried out under the supervision of Mr. R. J. Allison, A.R.I.B.A. The general contractors for the whole of the work are Messrs. Perry and Co. (Bow), Ltd.



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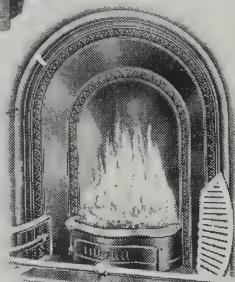


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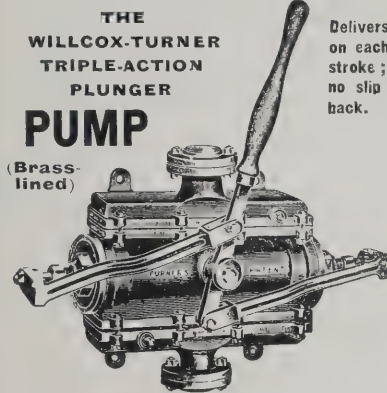
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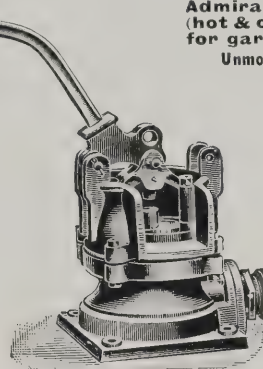
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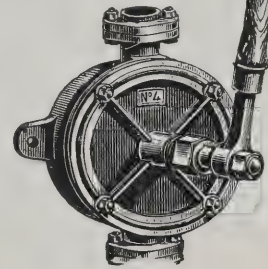
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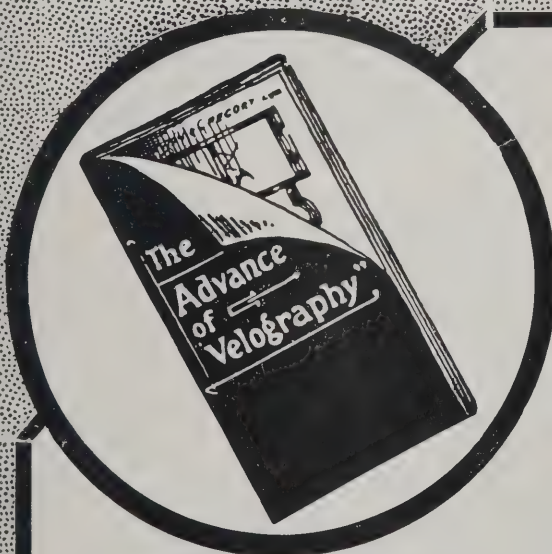
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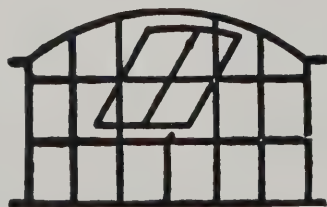
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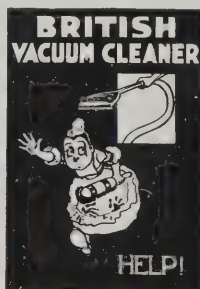


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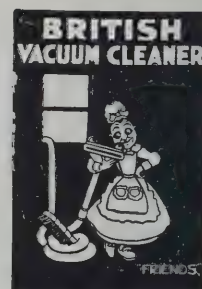


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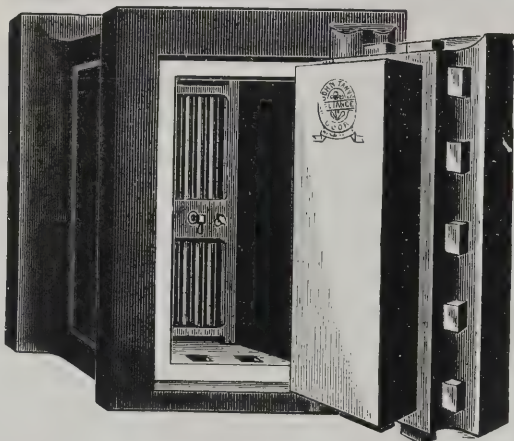
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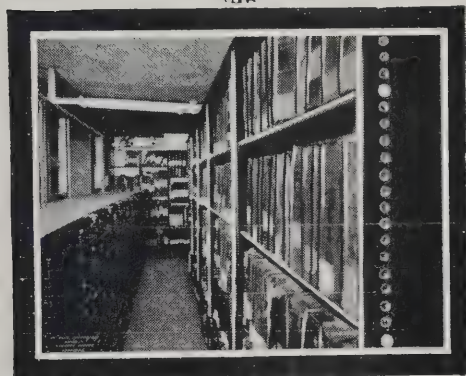
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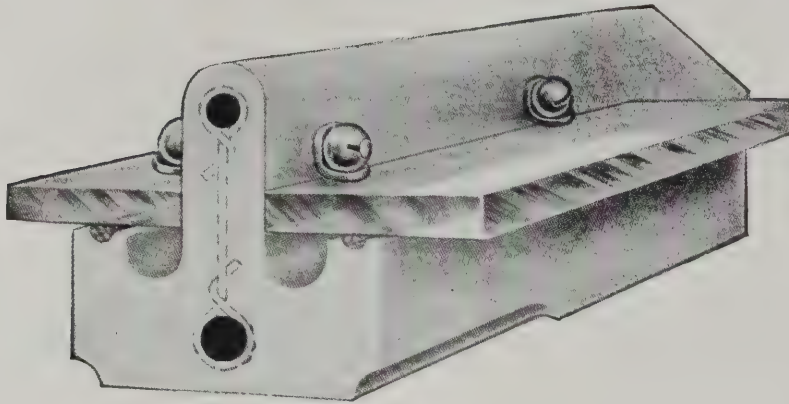
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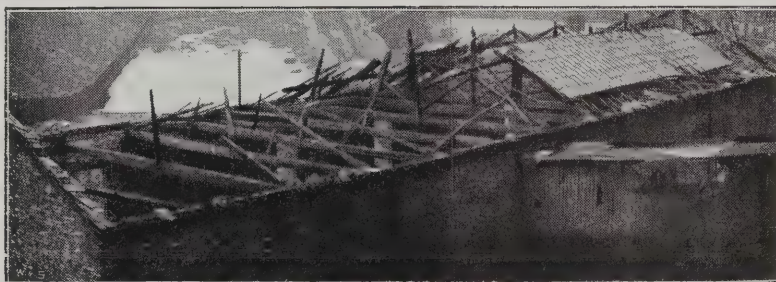
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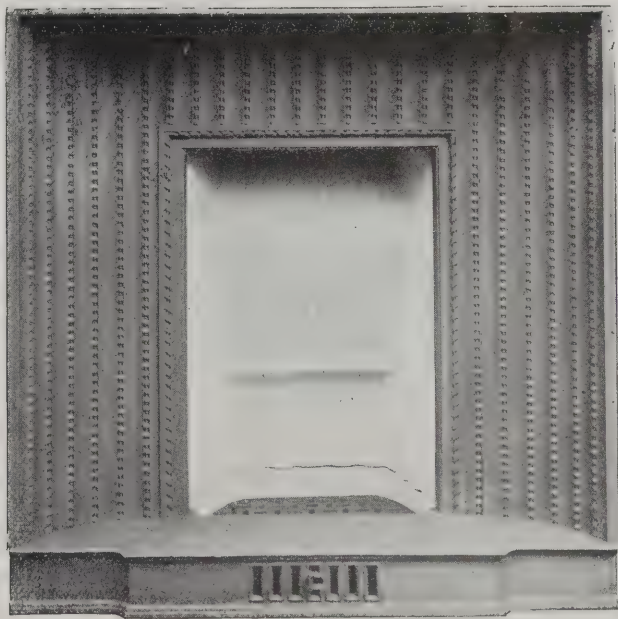
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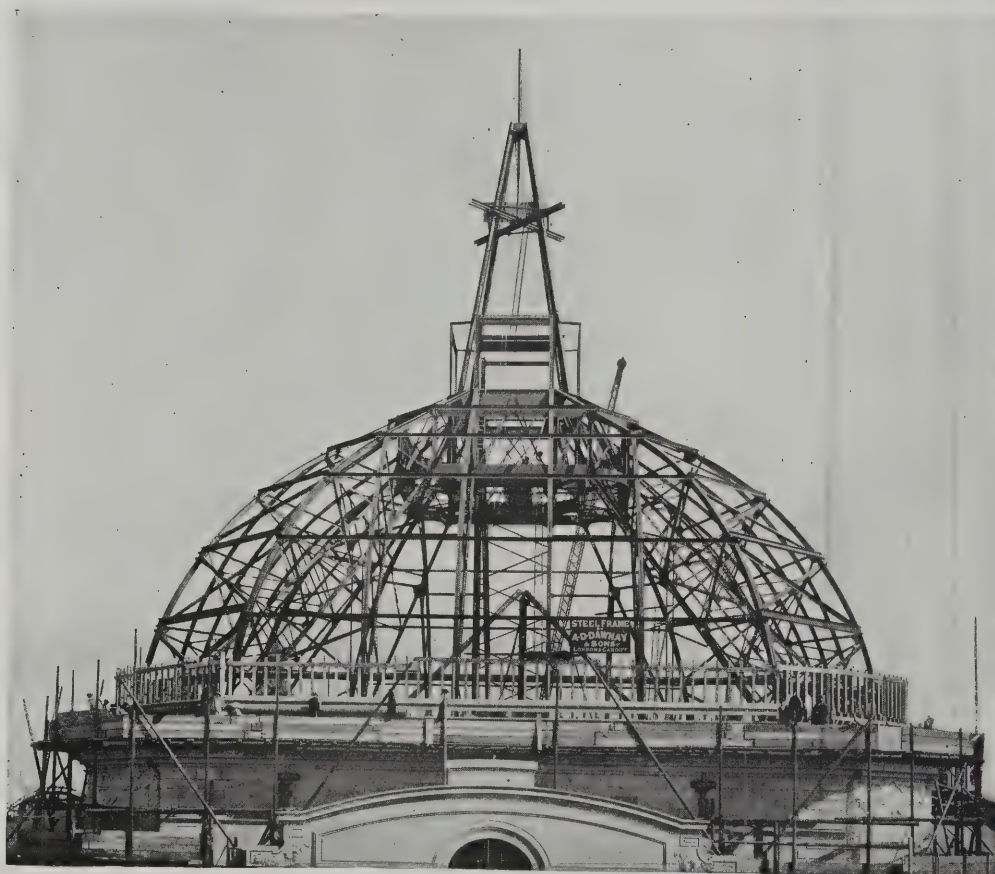
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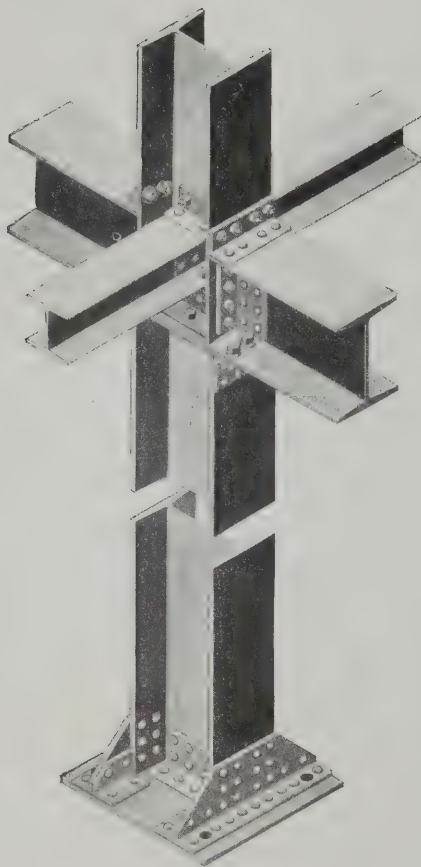
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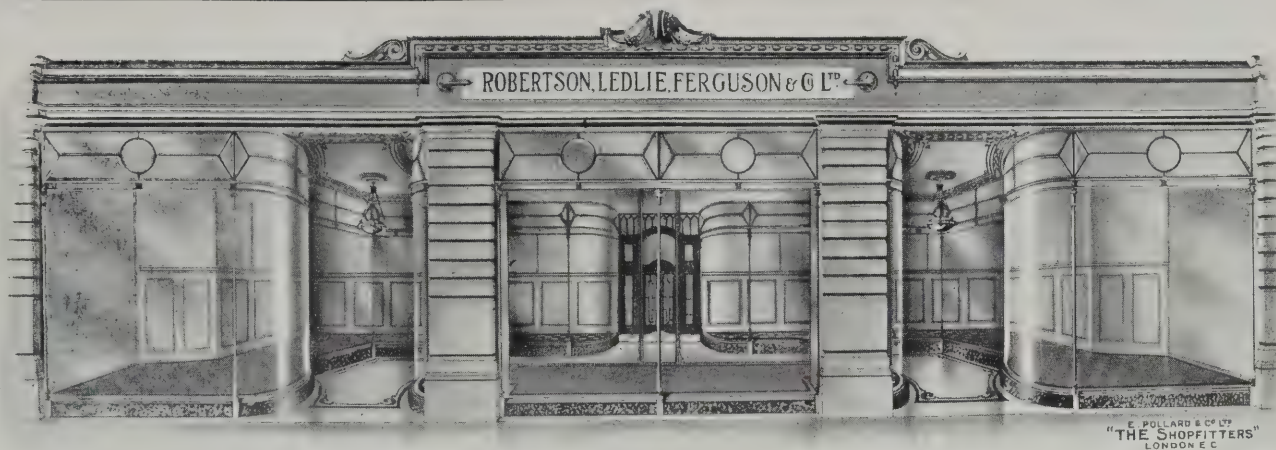
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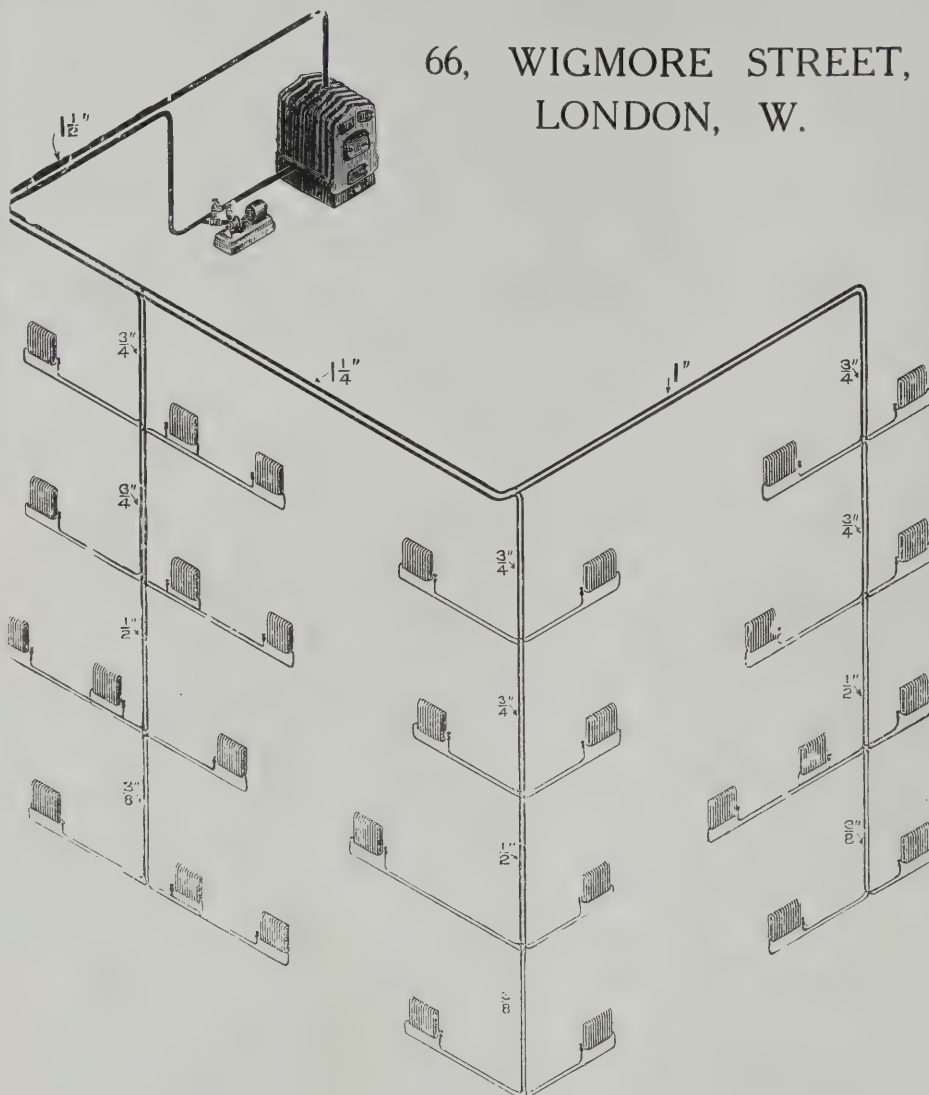
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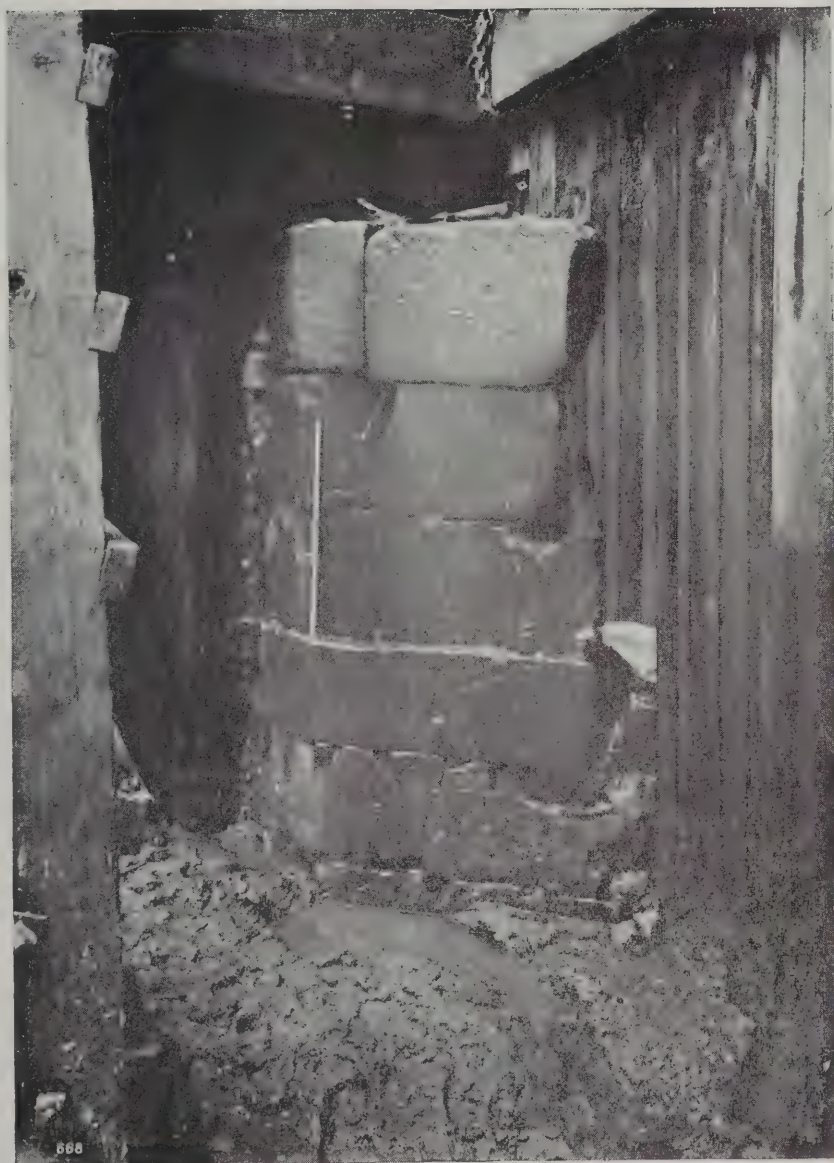


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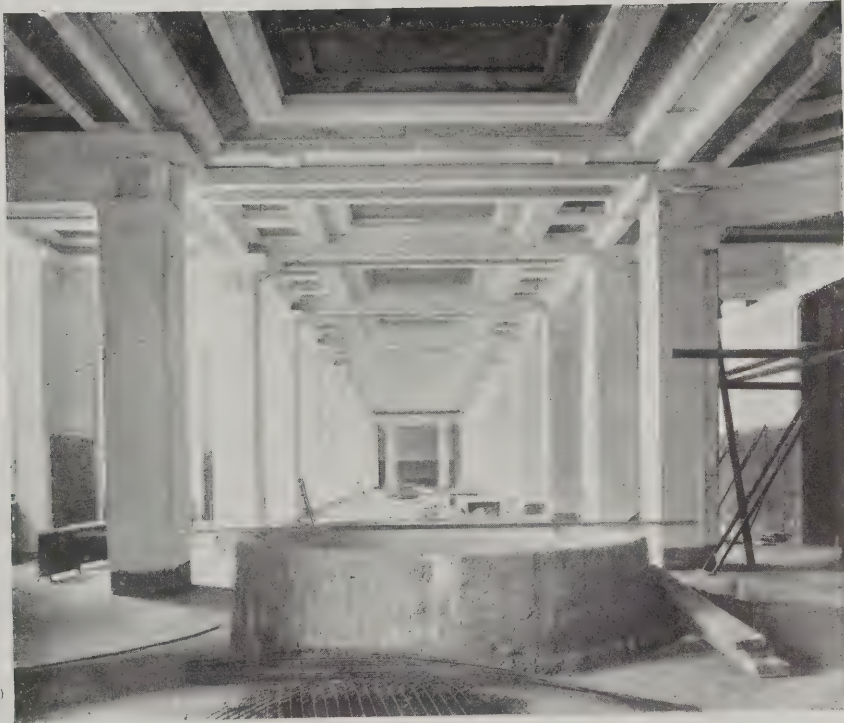
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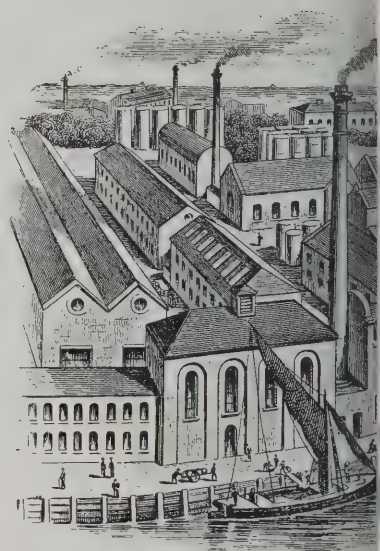
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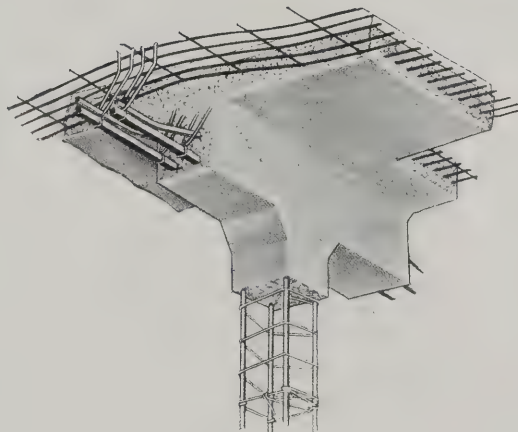
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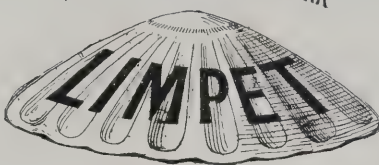
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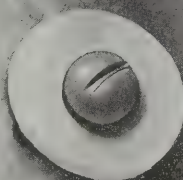
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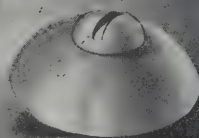
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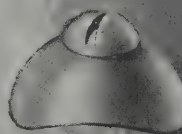
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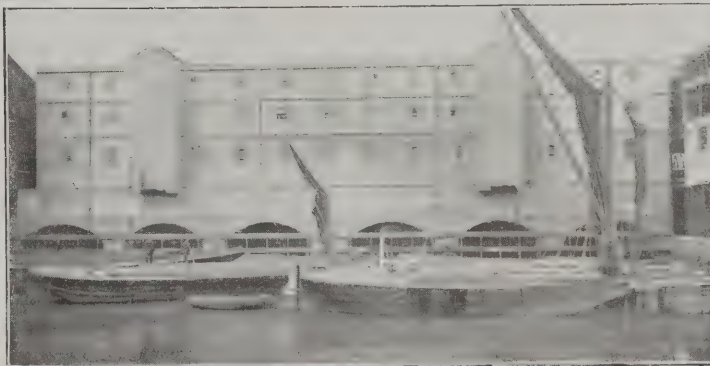
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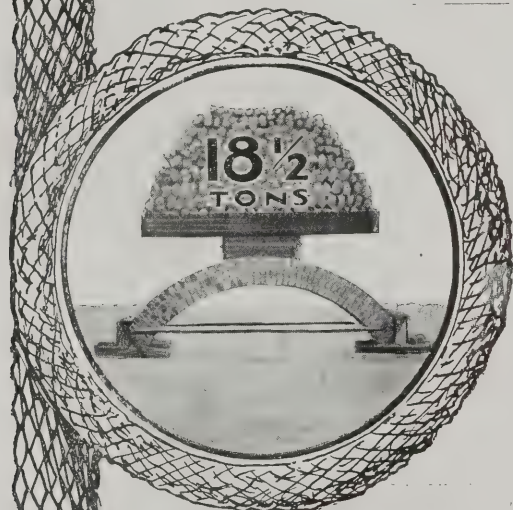
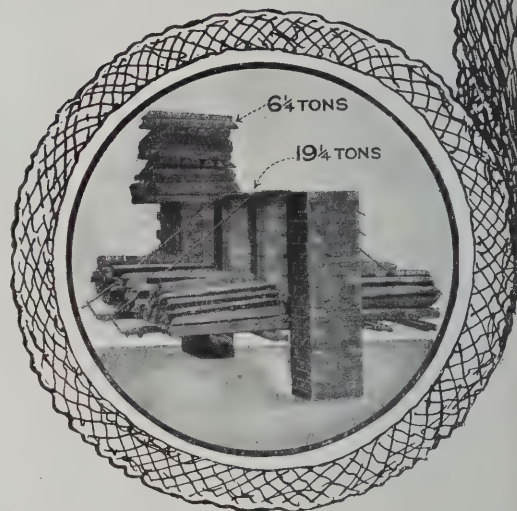
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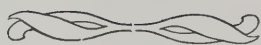
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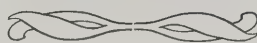
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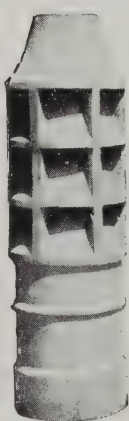
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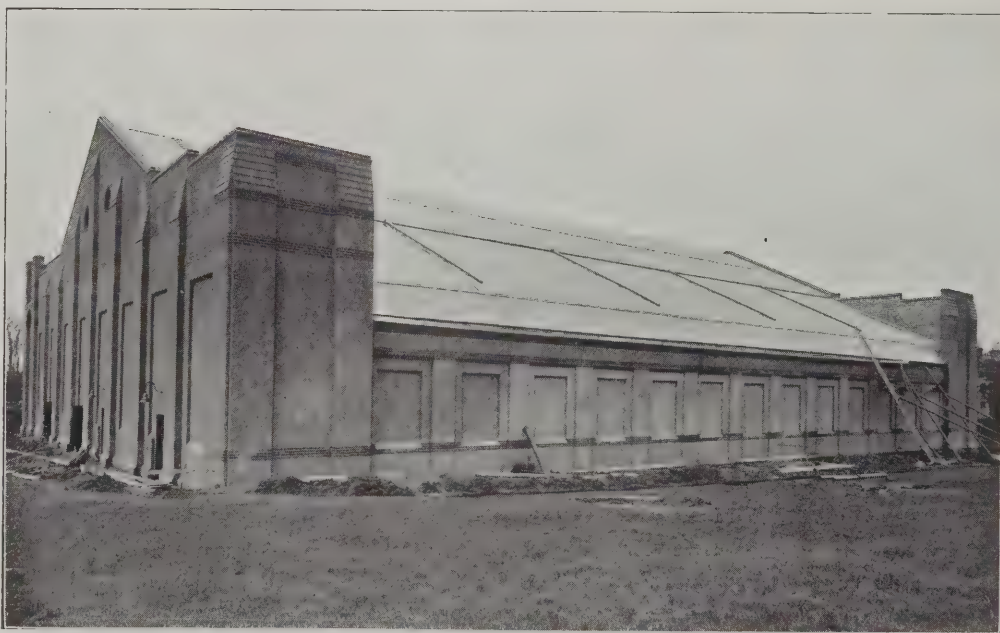


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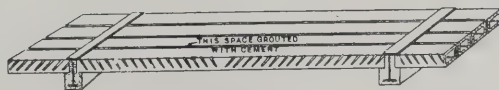
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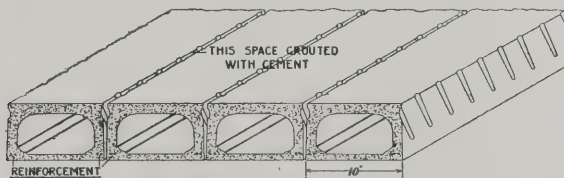


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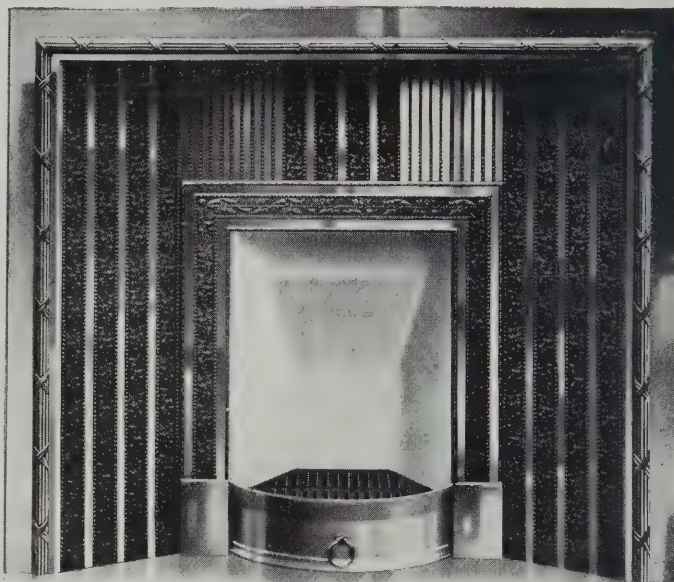


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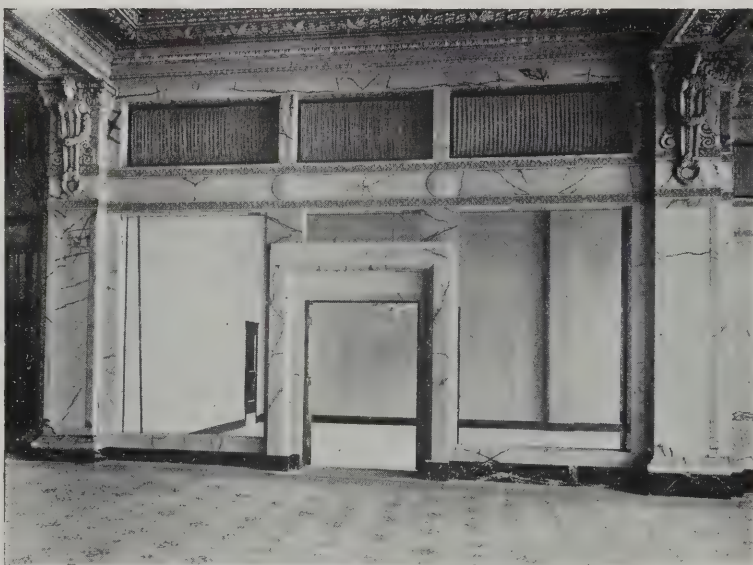
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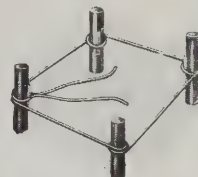
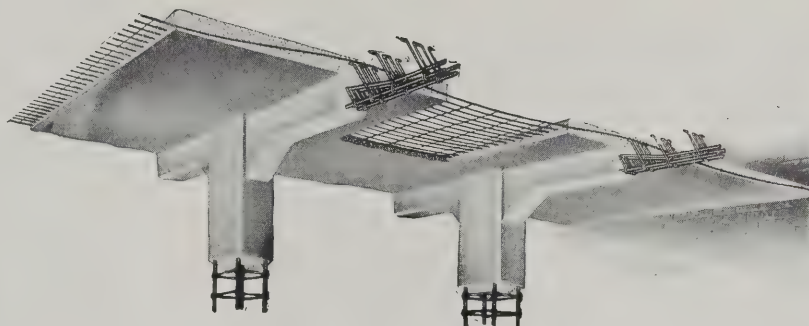
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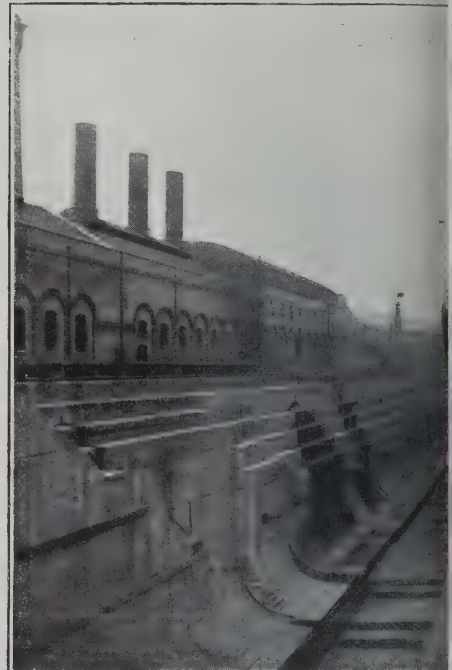
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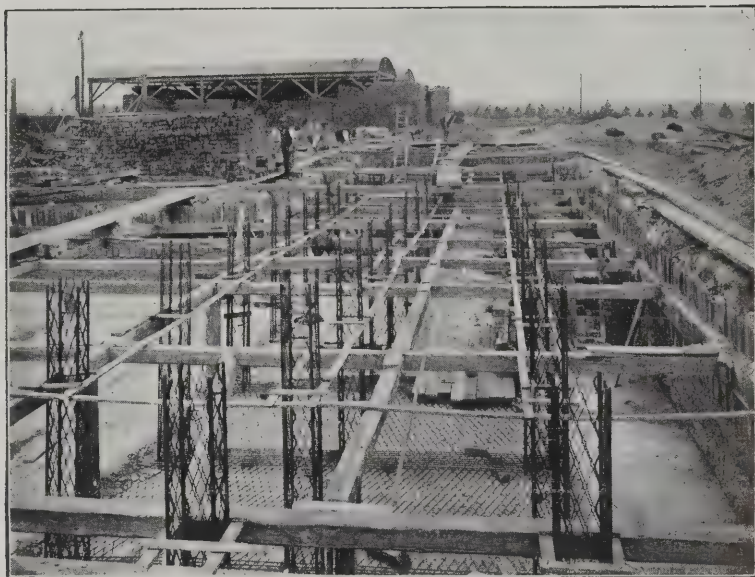
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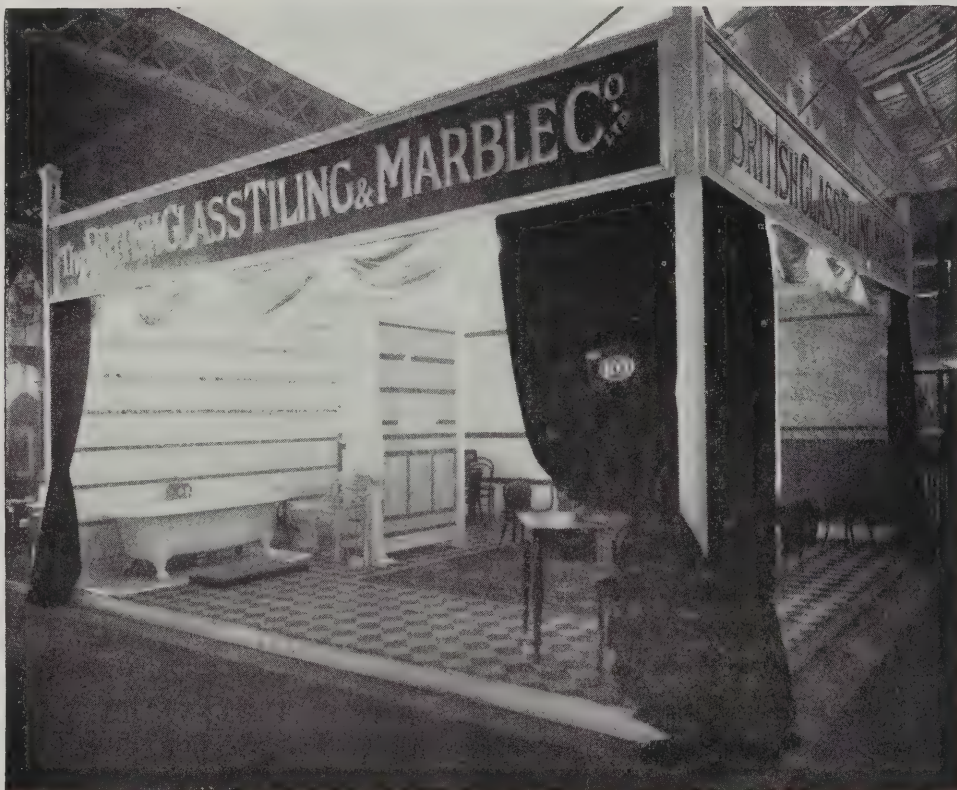
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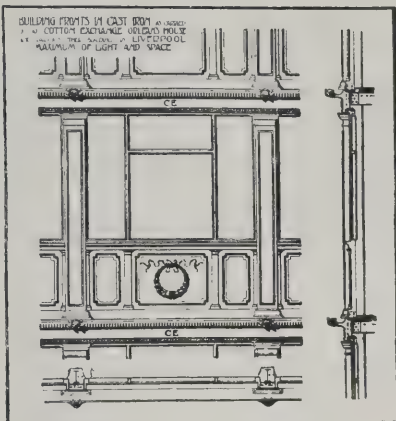
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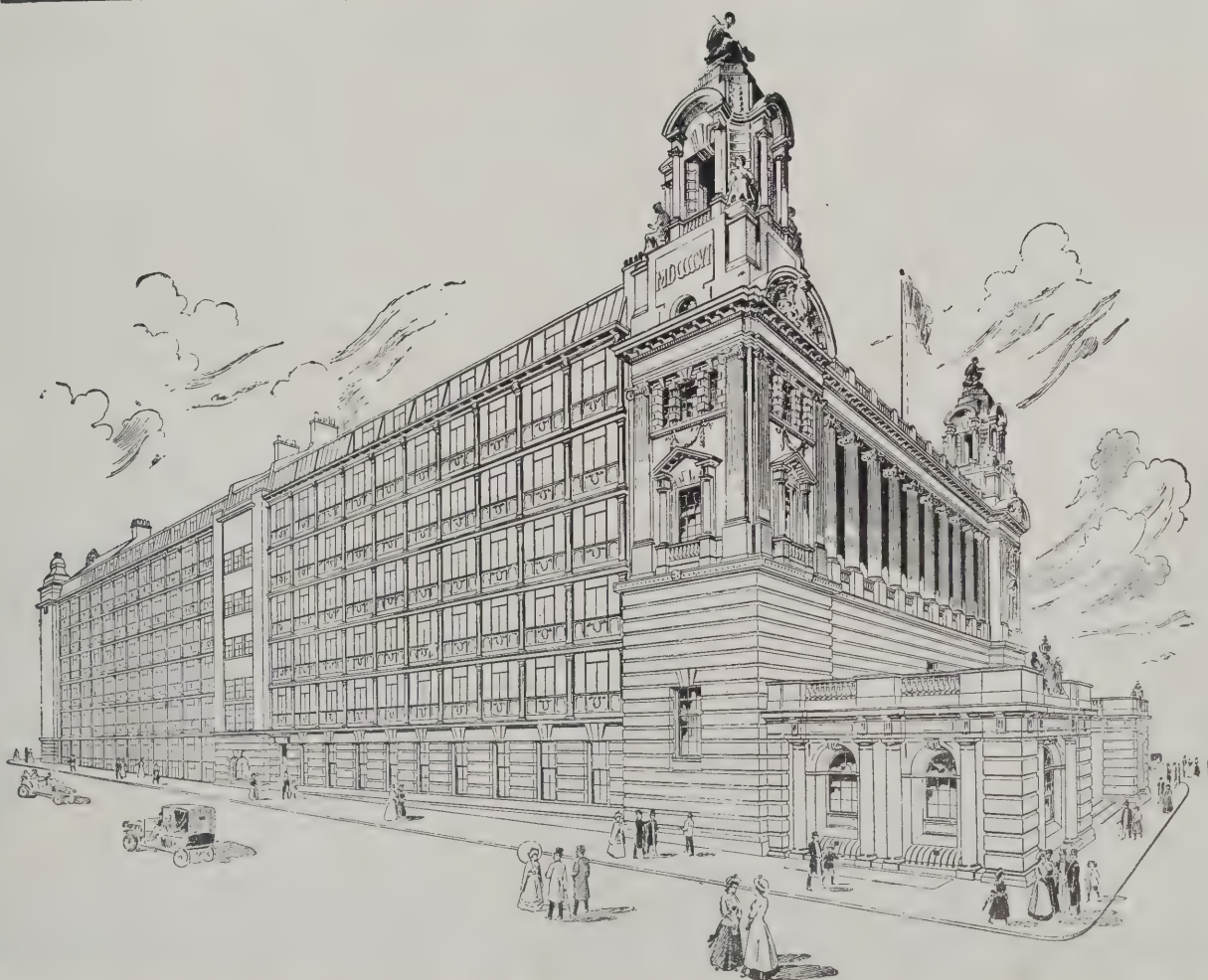
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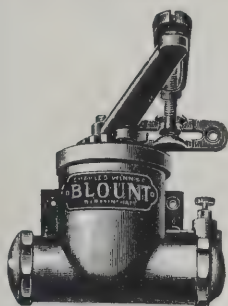
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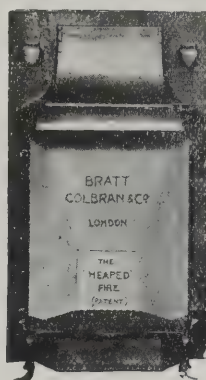
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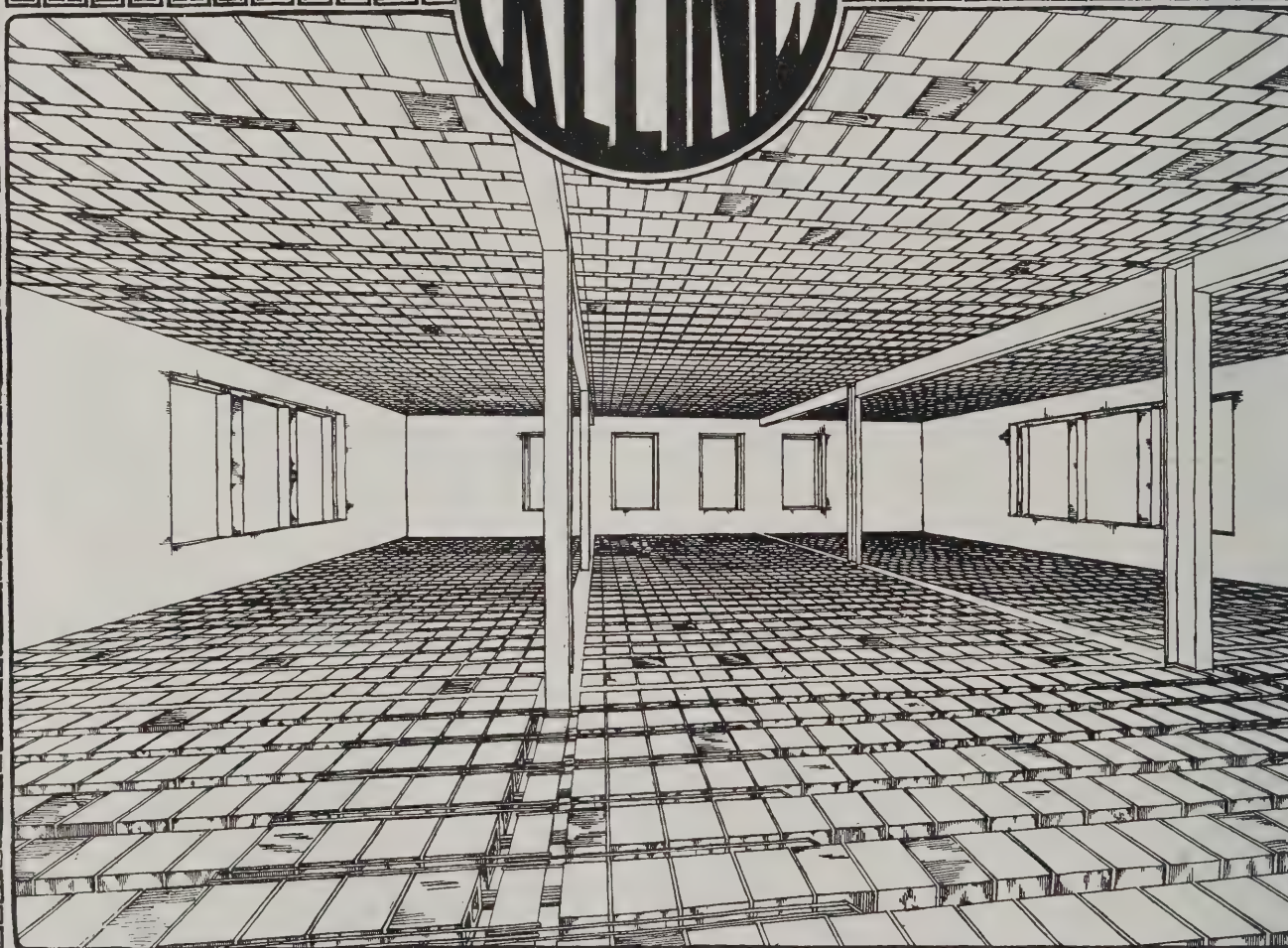
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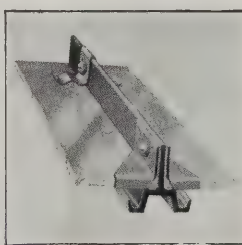
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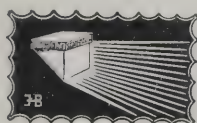
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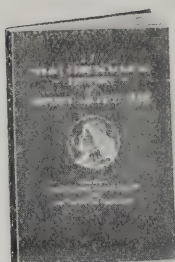
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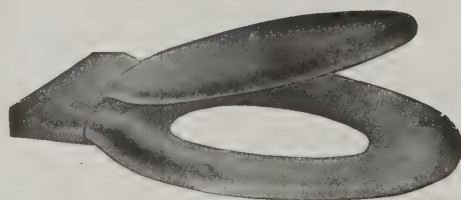
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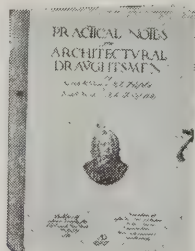
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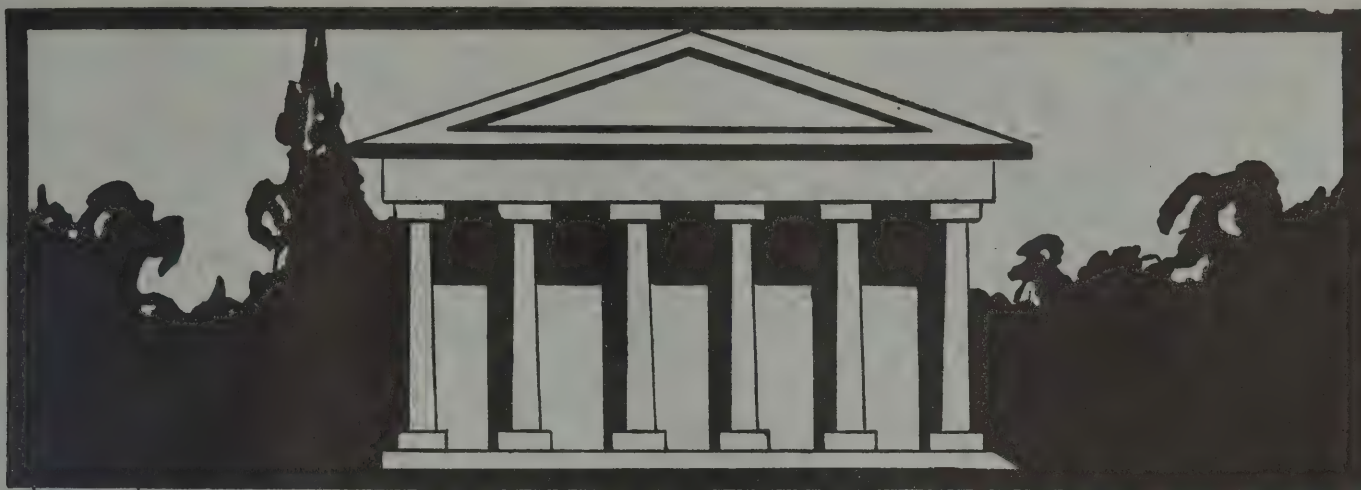
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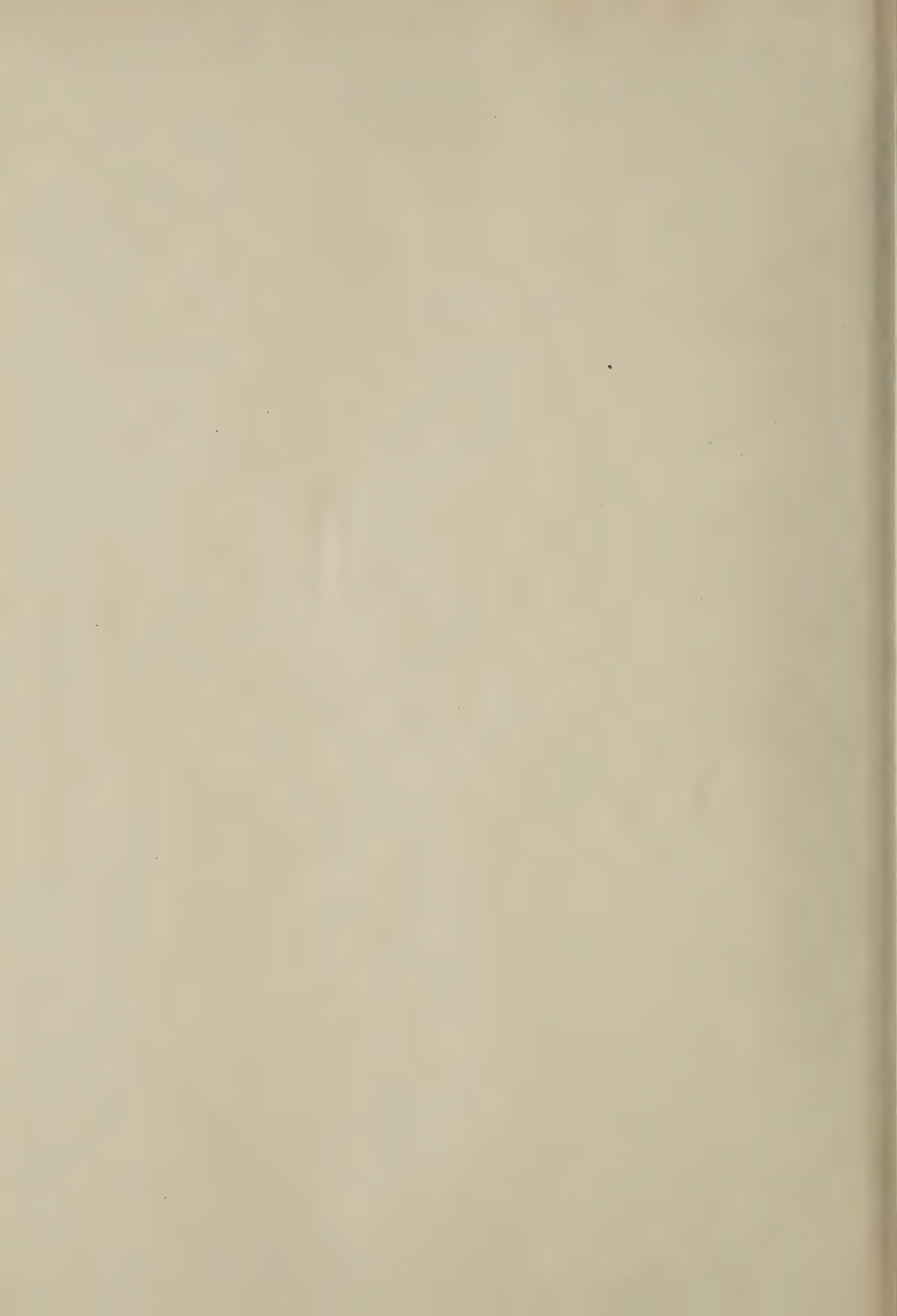
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